SERVICE MANUAL

FISHER

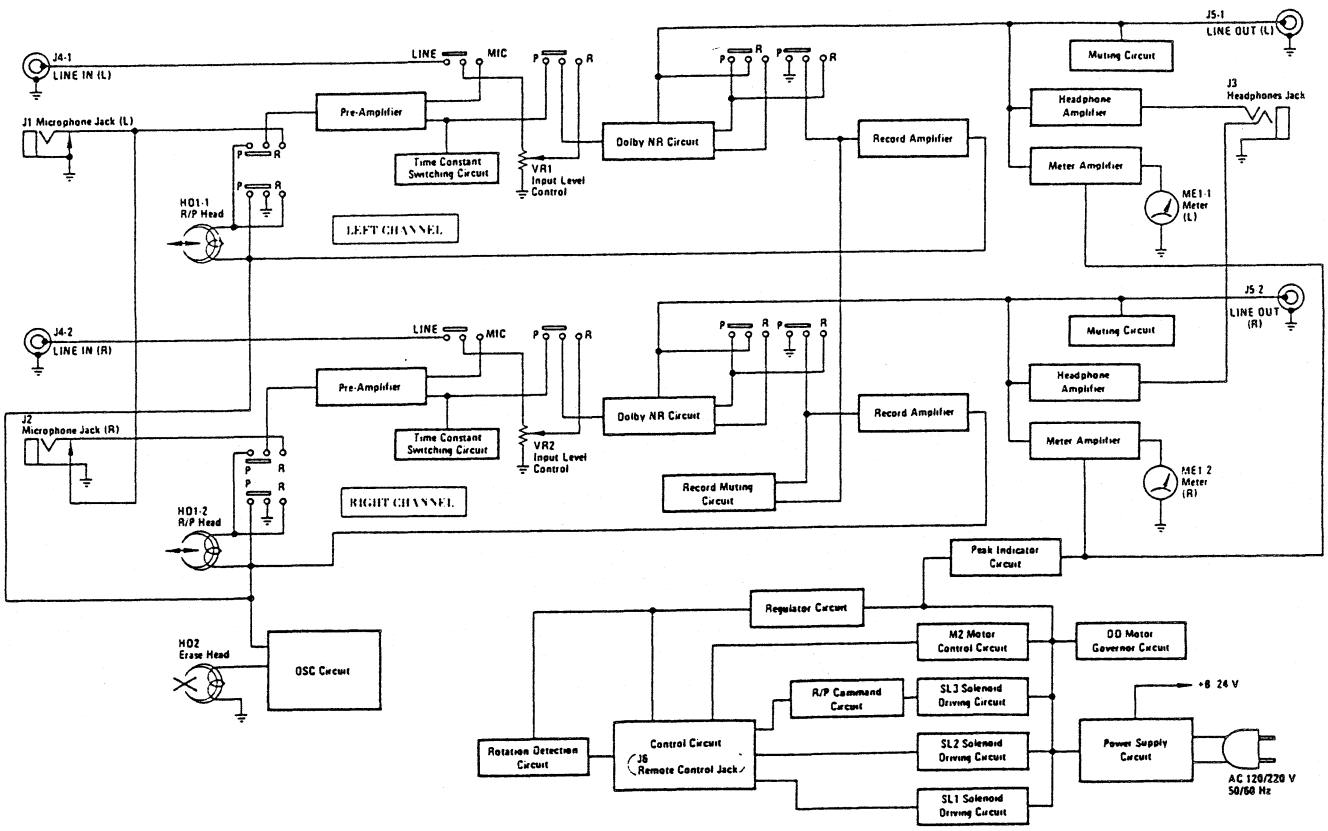
DD-350

Stereo Cassette Deck

(EUROPE)

The first name in high fidelity

FUNCTIONAL BLOCK DIAGRAM



SPECIFICATIONS

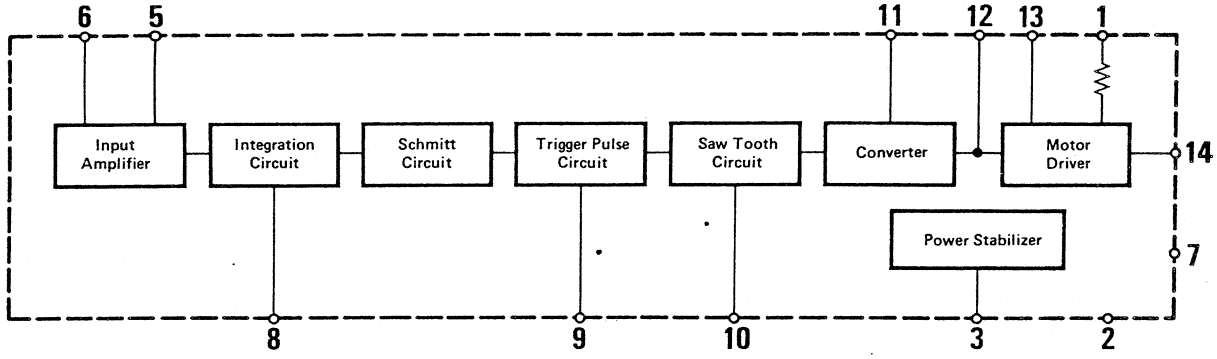
CASSETTE DECK	DD-350
Motor	1 Direct Drive, DC Servo 1 DC Governor
Cassette Loading	Front
Drive System	1 Capstan
Number of Heads	2
Head Material	MX/Ferrite
Operation	Solenoid
Wow & Flutter	0.04 % WRMS
Signal-to-Noise Ratio (CCIR Weighted)	
Dolby* Off	54 dB
Dolby* On	62 dB
Erase Ratio	70 dB
Channel Separation	40 dB
Signal Crosstalk	70 dB
Frequency Response	
Normal Tape (±3 dB)	40 Hz – 14 kHz
CrO_2 Equivalent Tape (±3 dB)	40 Hz – 15 kHz
Metal Tape (±3 dB)	40 Hz – 15 kHz
Total Harmonic Distortion at 0 VU	1.5 %
Fast Forward/Rewind Time (C-60)	90 sec.
Level Indicators	2 VU Meters 3 L.E.D. Peak Indicators
Inputs (Sensitivity/Impedance)	Microphone 1.0 mV/10 kΩ Line 100 mV/50 kΩ
Output (Level at 0 VU/Impedance)	Line 500 mV/5 kΩ
Tape Select Buttons	Normal, CrO_2, Metal
Tape Counter	Mechanical
Power Requirements	120/220 V, 50/60 Hz
Power Consumption	37 W
Dimensions (W x H x D)	440 x 100 x 270 mm
Weight (approx.)	6 kg

***Dolby is registered trademark of Dolby Laboratories.**

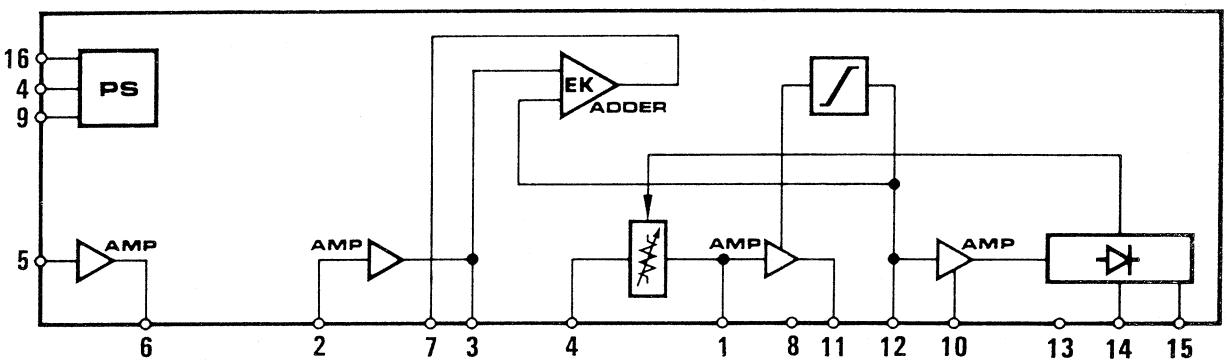
Because its products are subject to continuous improvement, Fisher Corporation reserves the right to modify any design or specifications without notice and without incurring any obligation.

IC SIGNAL FLOW & EQUIVALENT CIRCUIT

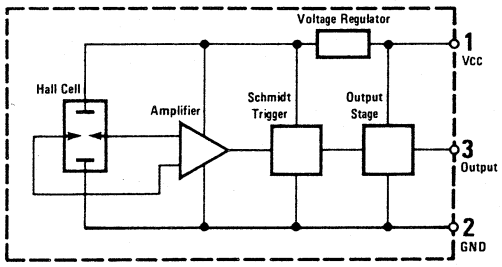
LB1601 SIGNAL FLOW



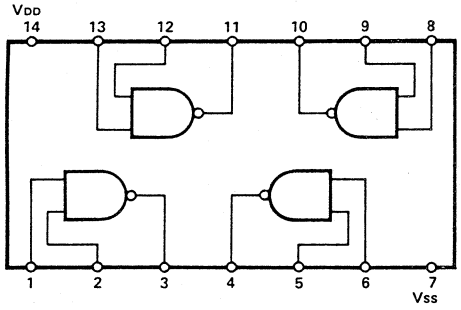
NE646B SIGNAL FLOW



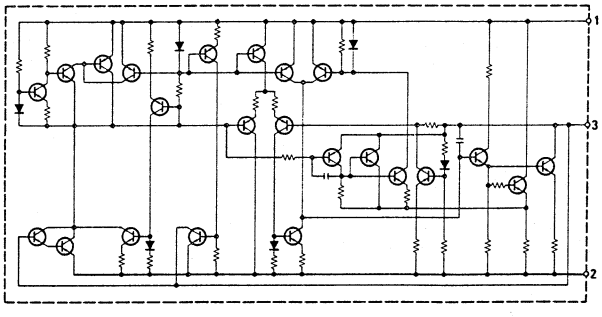
DN6839 SIGNAL FLOW



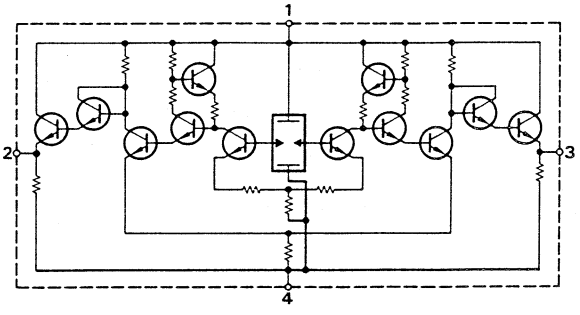
LC4011 SIGNAL FLOW



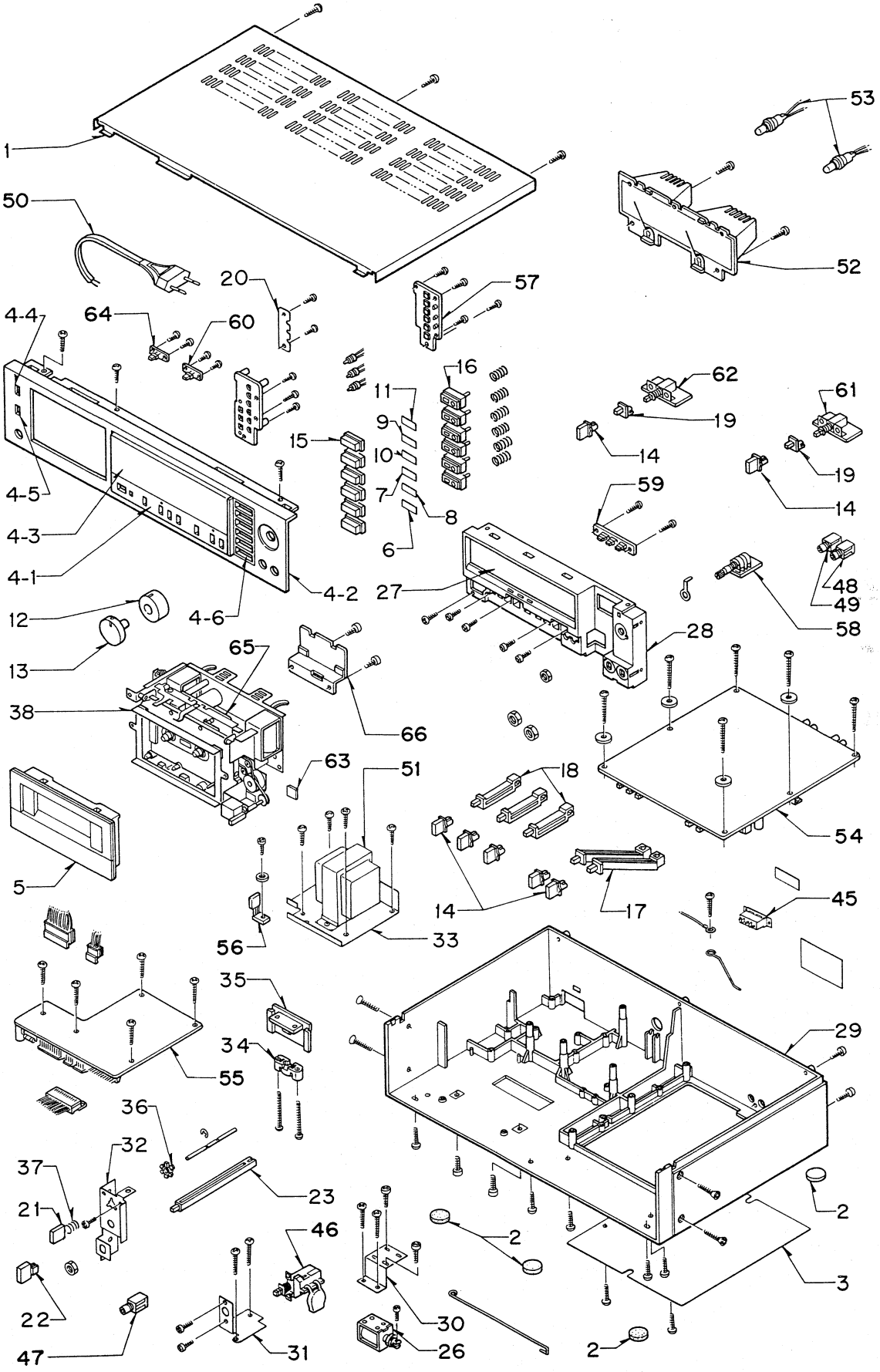
μPC1447H EQUIVALENT CIRCUIT



DN835 EQUIVALENT CIRCUIT



CABINET & CHASSIS EXPLODED VIEW



PARTS LIST

PACKING PARTS LIST

Ref. No.	Parts Number	Description
	131 6 1169 01101	Box Corrugate-EXP
	131 6 2119 02131	Bag Polyethylene-EXP
	141 6 1449 65000	Case Styrofoam (Right)
	141 6 1449 65100	Case Styrofoam (Left)
	141 6 3119 19800	Pad

ACCESSORIES PARTS LIST

Ref. No.	Parts Number	Description
	131 0 4004 11502	Wire Shield Assy
	131 6 2719 10801	Bag Fan
	131 6 4119 88401	Explanatory Booklet
	131 6 4519 15700	Guarantee Certificate

CABINET PARTS LIST

Ref. No.	Parts Number	Description
1	131 2 1410 26900	Cover
2	141 2 1749 02500	Leg
3	141 2 2449 33400	Panel Sheet

APPEARANCE PARTS LIST

Ref. No.	Parts Number	Description
4	131 0 1016 39902	Panel Decorative Assy
4-1	131 2 1110 31501	Plate Decorative
4-2	131 2 1203 54702	Panel Control
4-3	131 2 1205 26500	Decorative Plate Dial
4-4	131 2 6113 44800	Shelter
4-5	131 2 6113 44900	Shelter
4-6	131 2 6113 45000	Shelter
5	131 0 2022 11300	Lid Assy
6	131 2 1310 38400	Name Plate (Record)
7	131 2 1310 38401	Name Plate (Play)
8	131 2 1310 38402	Name Plate (Pause)
9	131 2 1310 38403	Name Plate (Stop)
10	131 2 1310 38404	Name Plate (F.FWD)
11	131 2 1310 38405	Name Plate (Rewind)
12	131 0 1001 60900	Knob Assy (Input Level)
13	131 0 1001 61000	Knob Assy (Input Level)
14	131 2 1601 61001	Knob (Push Switch)
15	131 2 1601 73300	Knob
16	131 2 1601 74100	Knob
17	131 2 1601 74200	Knob (Dolby, Input Joint)
18	131 2 1601 74300	Knob (Tape Position Joint)
19	131 2 1601 74400	Knob (Mute, Record Joint)
20	131 2 3101 80100	Metal Mount
21	141 0 1619 28700	Button Eject Assy

APPEARANCE PARTS LIST

Ref. No.	Parts Number	Description
22	141 2 1619 74700	Knob Power (Power)
23	141 2 1619 75000	Knob Joint

CHASSIS PARTS LIST

Ref. No.		Parts Number	Description
26		4 2649 70380	Plunger
27		131 2 1110 31300	Plate Decorative
28	*	131 2 3305 32600	Panel Front
29	*	131 2 3301 28400	Chassis Cabinet
30		141 2 3519 50600	Bracket Plunger
31		141 2 3519 50700	Bracket Switch
32		141 2 3519 50800	Bracket Chassis
33		141 2 3719 05600	Bracket Transformer
34		141 2 3899 06900	Clampe Line Cord
35		141 2 3899 08300	Holder Cord
36		141 2 5739 05700	Bushing
37		141 2 8519 34400	Spring Lever Stop
38		4 1412 00020	Cassette Deck Unit

ELECTRICAL PARTS LIST

Ref. No.		Parts Number	Description
45	⚠	4 2319 72140	Switch Slide
46	⚠	4 2319 72356	Power Switch
47		4 2359 73902	1P Jack
48		4 2359 73903	Mic Jack (R)
49		4 2359 74010	Mic Jack (L)
50	⚠	4 2439 70350	Line Cord
51	⚠	4 2519 73250	Power Transformer
52		4 5112 00540	Meter Assy
53		4 6129 70480	Meter Lamp
54	*	131 0 4001 08161	RP, PB, PRE, OSC P.C.B. Assy
55	*	131 0 4001 08171	Control P.C.B. Assy
56	*	131 0 4001 08190	Regulator P.C.B. Assy
57	*	131 0 4001 08200	Switch Board P.C.B. Assy
58	*	131 0 4001 08220	Volume P.C.B. Assy
59	*	131 0 4001 08230	Peak Level P.C.B. Assy
60	*	131 0 4001 08240	Dolby Ind. P.C.B. Assy
61	*	131 0 4001 08250	Rec Mute P.C.B. Assy
62	*	131 0 4001 08260	Timer P.C.B. Assy
63	*	131 0 4001 08270	Hall IC P.C.B. Assy
64	*	131 0 4001 08340	L.E.D. P.C.B. Assy
65	*	131 0 3519 19100	DD Governor P.C.B. Assy
66	*	131 0 4001 08180	Sub Control P.C.B. Assy
C01		C2GYDP103A-S	Ceramic 0.01 μF 400V +100,–0%

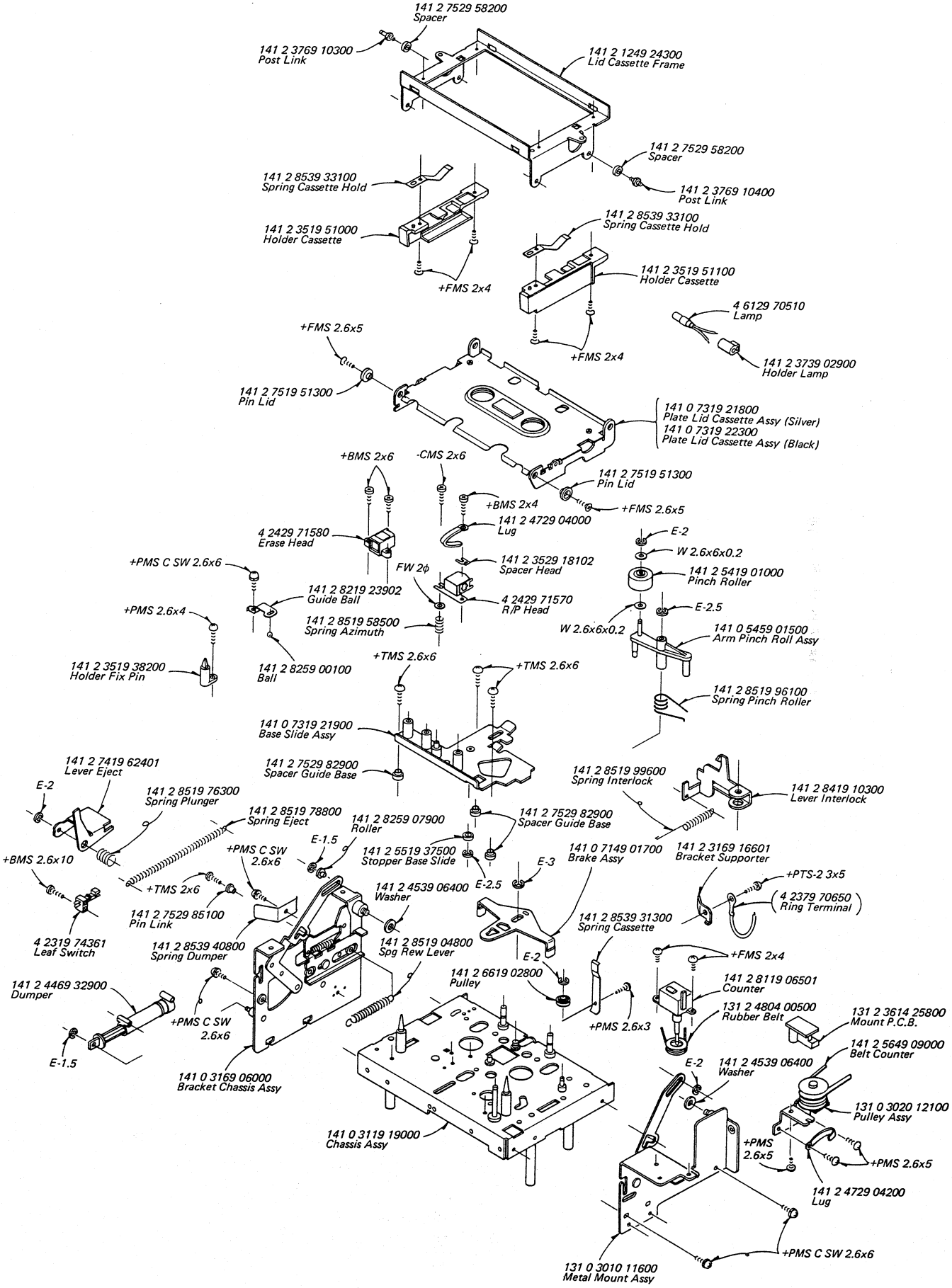
*—Not a Service Part.

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF AN UNIT. COMPONENTS INDICATED BY A MARK ⚠ IN THIS PARTS LIST AND THE SCHEMATIC DIAGRAM SHOW COMPONENTS WHOSE VALUE HAS SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE FOLLOWING PARTS LIST BE USED FOR COMPONENT REPLACEMENT POINTED OUT BY THE MARK.

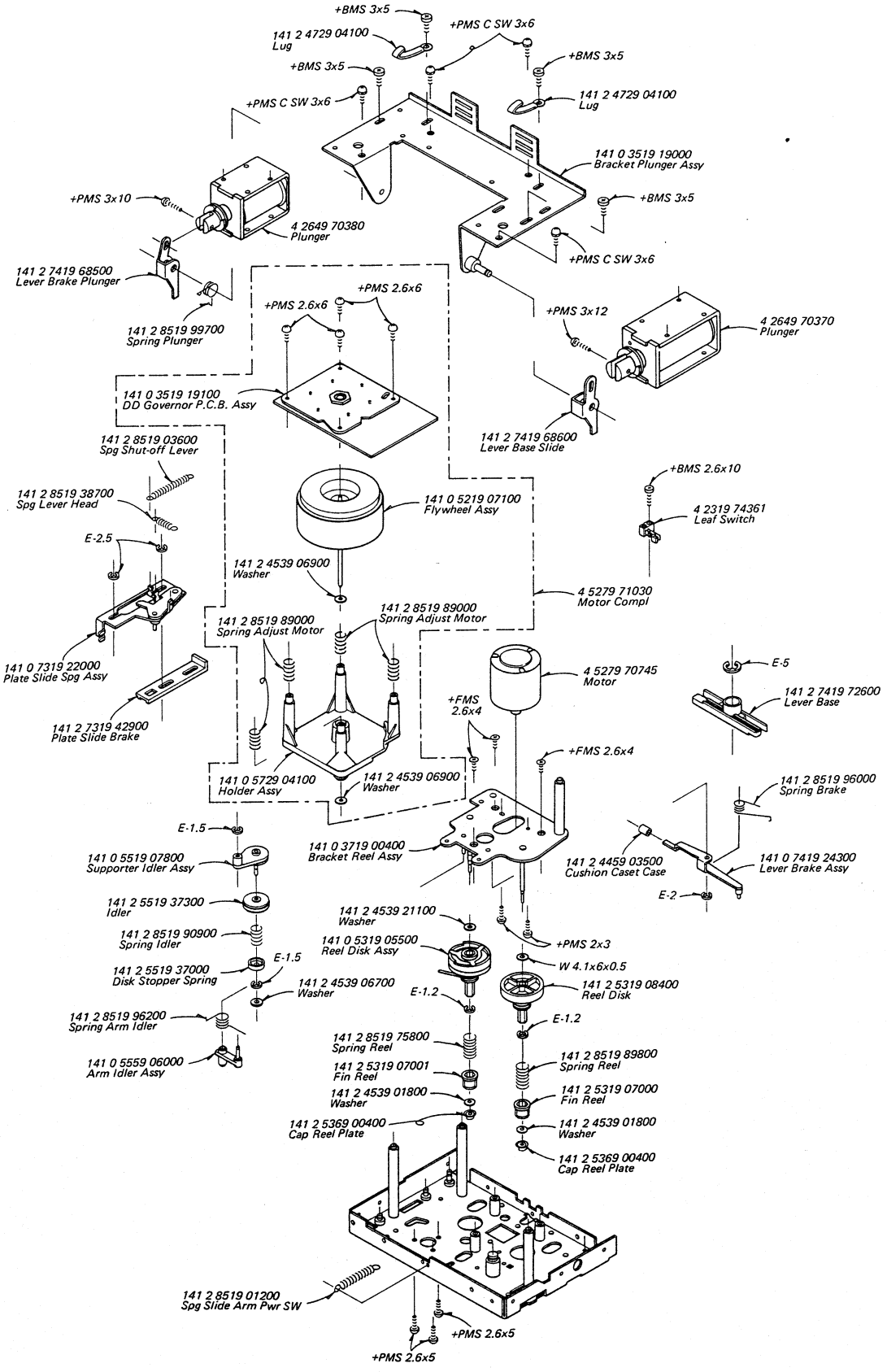
CASSETTE DECK EXPLODED VIEW

(TOP VIEW)



CASSETTE DECK EXPLODED VIEW (Continued)

(BOTTOM VIEW)



MECHANICAL ADJUSTMENTS

EQUIPMENT REQUIRED

- Phillips screwdriver
- Flat-bladed screwdriver
- A pair of round-nose pliers
- A pair of nippers
- Cassette Tape
- Paint or glue
- Wow and flutter meter

GENERAL REMARKS

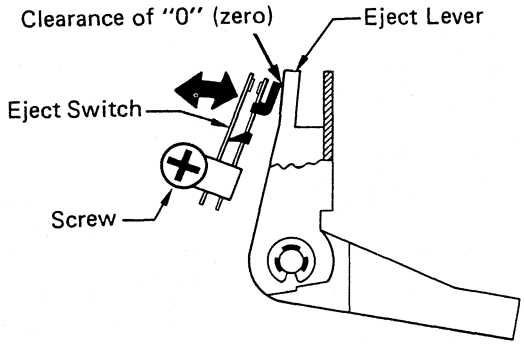
- Before adjusting the mechanism of the unit, wipe the tape contacting surfaces clean with a soft cloth soaked in alcohol.

EJECT SWITCH ADJUSTMENT

The Eject Switch is turned on by pushing the Eject button, so that the unit is released from any modes and set in the stop mode. After that, the cassette holder opens slowly.

1. Check that the clearance between the Switch and Eject Lever becomes "0" (zero) when the cassette holder is closed and the Eject button is slightly pushed.

2. If necessary, loosen the screw fastening the Switch and move the Switch to the specified position as illustrated.



3. After the adjustment, tighten the fastening screw and secure it with paint or glue.

   NOTE:
   The clearance of the switch contacts should be approximately 0.5mm.

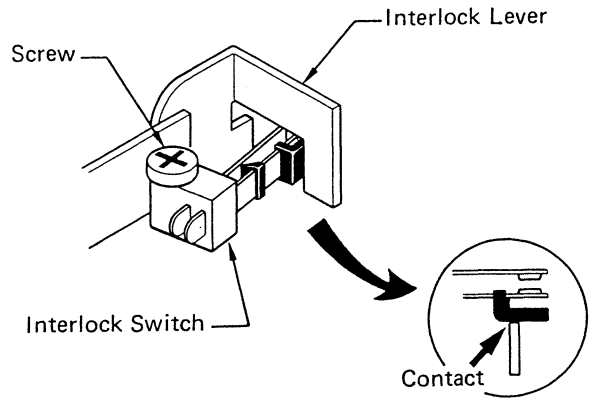
INTERLOCK SWITCH ADJUSTMENT

It can be checked whether the flaps on the rear of the cassette are removed or not by pressing this switch lever. If the switch does not function, no recording can be made by pressing the Record button. This switch performs the following functions to prevent a recording error.

- When the cassette has the flaps or the cassette holder is opened, this switch is turned on.
- When the cassette has no flaps or the cassette holder is closed without a cassette inserted into the cassette holder, this switch is turned off.

Perform the switch adjustment as follows:

1. Close the cassette holder without a cassette inserted into the cassette holder. Loosen the screw fastening the switch and bring the switch in contact with the Interlock Lever as illustrated. Then, tighten the fastening screw.



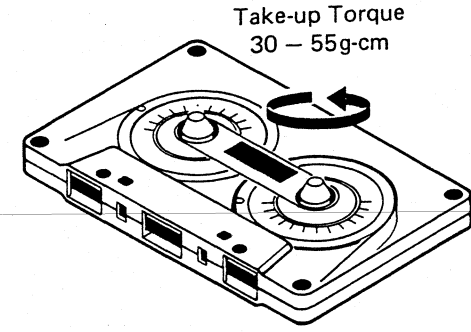
2. Insert a cassette into the cassette holder. Then, alternately open and close the cassette holder and check to see that the switch functions correctly.

3. After the adjustment, secure the fastening screw with paint or glue.

   NOTE:
   Before this adjustment, remove the Mechanism Chassis from the unit. Also remove the Plunger Bracket from the Mechanism Chassis. The clearance of the switch contacts should be approximately 0.5mm.

TAKE-UP TORQUE ADJUSTMENT

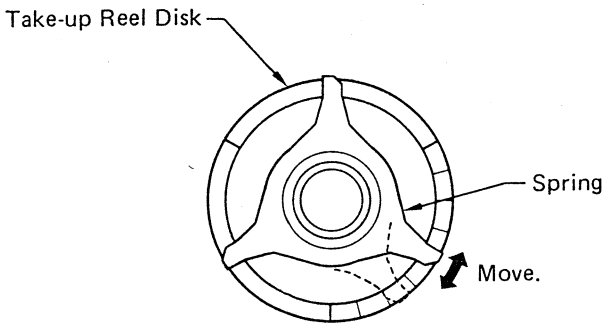
1. Insert the cassette-type torque meter (100g-cm Max.) into the cassette holder and set the unit in the playback mode. The torque meter should read 30 – 55g-cm.



Cassette-type Torque Meter

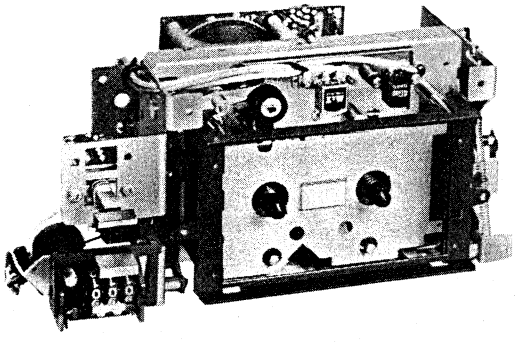
2. If necessary, adjust the take-up torque by moving the spring of the Take-up Reel Disk as illustrated.

MECHANICAL ADJUSTMENTS (Continued)



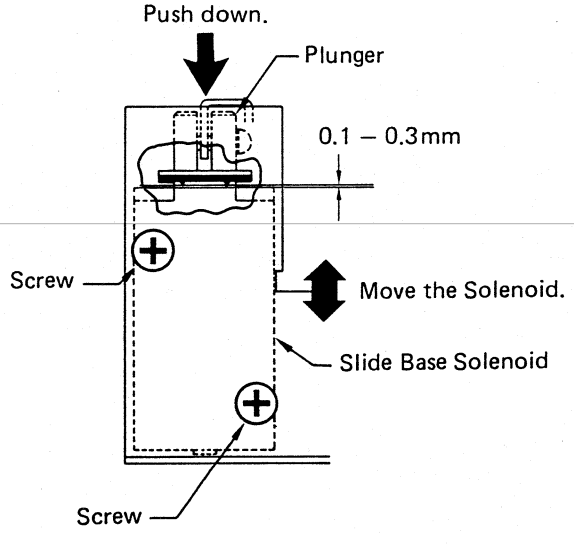
SOLENOID ADJUSTMENT

Two Solenoids are used in the Mechanism Chassis. Remove the Mechanism Chassis from the unit by following its removal instruction and turn over the Chassis as illustrated. Then, adjust the solenoid positions.



SLIDE BASE SOLENOID ADJUSTMENT

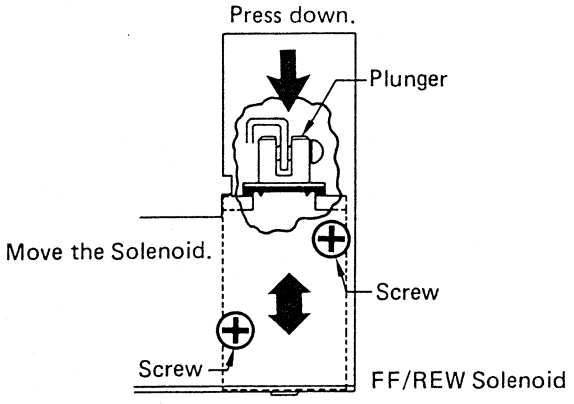
1. Loosen two screws fastening the Slide Base Solenoid and slowly press down the Plunger of the Slide Base Solenoid.
2. When the Slide Base is fully pressed down, the clearance between the Solenoid and Plunger should be 0.1 – 0.3mm.
3. If necessary, adjust the clearance by moving the solenoid position as illustrated.

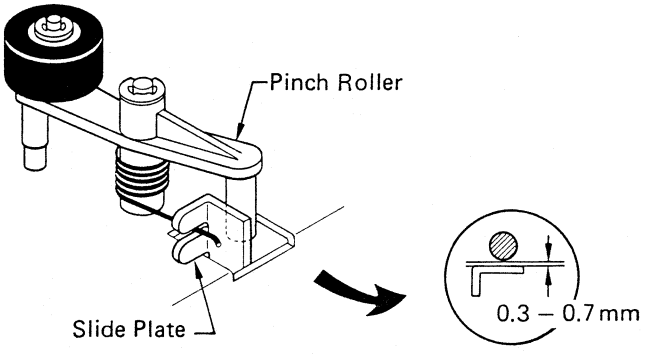


4. After the adjustment, tighten the screws fastening the Solenoid and secure them with paint or glue.

F.FWD/REW SOLENOID ADJUSTMENT

1. While keeping the Plunger of the Slide Base Solenoid pressed down, fully press down the Plunger of the F.FWD/REW Solenoid.
2. Check that the clearance between the Pinch Roller and Slide Plate is 0.3 – 0.7mm as illustrated.





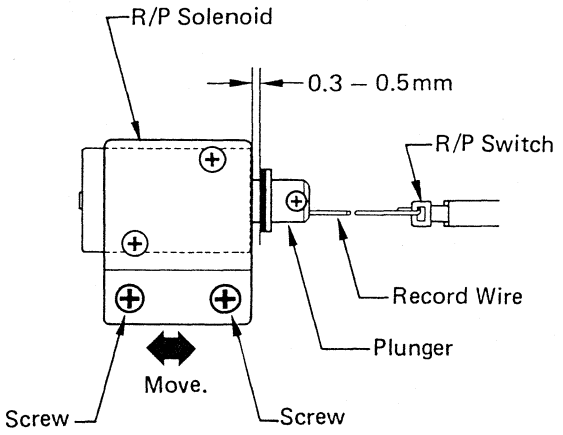
3. If necessary, loosen two screws fastening the F.FWD/REW Solenoid and move the Solenoid until the specified clearance is obtained.

NOTE:
When two Solenoids are not positioned correctly, the Solenoid may not pull the Plunger or the tape will be damaged.

R/P SOLENOID ADJUSTMENT

1. Remove the Cover and Sheet Panel from the unit by following their removal instructions. Then, remove the Control P.C.Board.
2. Slowly press the Plunger of the R/P Solenoid, observing the R/P Switch on the Amplifier P.C.Board.
3. When the R/P Switch is completely changed over, check that the clearance between the Solenoid and Plunger is 0.3 – 0.5mm.

MECHANICAL ADJUSTMENTS (Continued)



4. If necessary, loosen the screws fastening the Solenoid and move the Solenoid until the specified clearance is obtained.

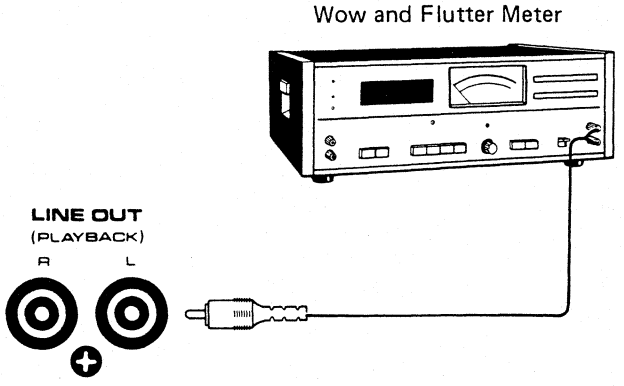
5. After the adjustment, tighten the fastening screws and secure them with paint or glue.

D.D. MOTOR ADJUSTMENT

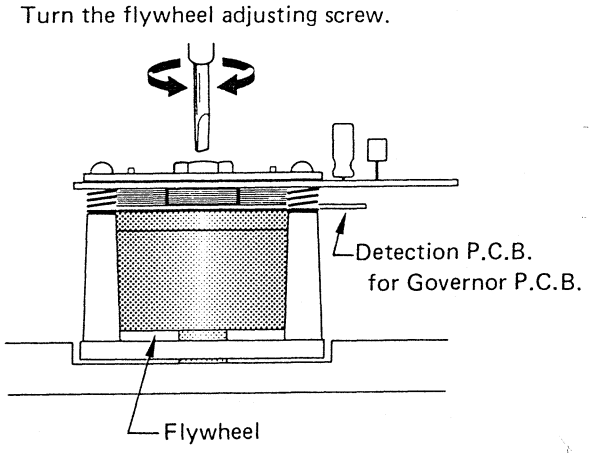
After the D.D. (Direct Drive) Governor P.C.Board has been removed or replaced, perform this adjustment by the following procedure.

1. Mount the D.D. Motor Governor P.C.Board to the Motor Holder by tightening four screws.

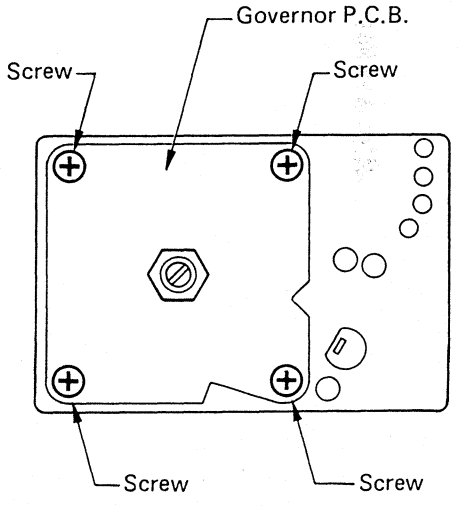
2. Connect the wow and flutter meter to the right or left channel LINE OUT as illustrated and insert a 3kHz test tape (Example: TEAC MTT-111) into the cassette holder. While playing back the test tape, perform the adjustment as follows.



3. Slowly turn the Flywheel Adjusting Screw counter-clockwise until the Flywheel comes in contact with the Detection P.C.Board on the D.D. Governor P.C.Board, and also turn the Adjusting Screw clockwise by 270° from the position as illustrated.



4. Then, turn four screws fastening the Governor P.C.Board until the wow and flutter meter reads less than 0.04%.



5. Perform the adjustment in Item 3 again and then, secure the Flywheel Adjusting Screw and four screws fastening the D.D. Governor P.C.Board with paint or glue.

6. After the adjustment, perform the Tape Speed Adjustment by following its adjusting procedure.

ELECTRICAL ADJUSTMENTS

EQUIPMENT REQUIRED

- VTVM (2 sets)
- Frequency Counter
- Attenuator
- Dummy Load
  - * 47k-ohm Dummy Load: used when the output is obtained from LINE OUT
- Audio Signal Generator
- Dualtrace Synchroscope
- Test Tapes
  - * 3kHz Test Tape (Example: TEAC MTT-111) for Tape Speed Adjustment
  - * 10kHz Test Tape (Example: TEAC MTT-114) for Head Azimuth Adjustment
  - * Test Tape (Example: TEAC MTT-150 for DOLBY Calibration Level) for Playback Sensitivity Adjustment
- Tapes for recording and playback
  - * Normal Tape (Example: TDK AC-221)
  - * Chrome Tape (Example: TDK AC-512)
  - * Metal Tape (Example: TDK AC-711)
- Alignment Tool

Before the Electrical Adjustment, set the measuring instruments as follows:

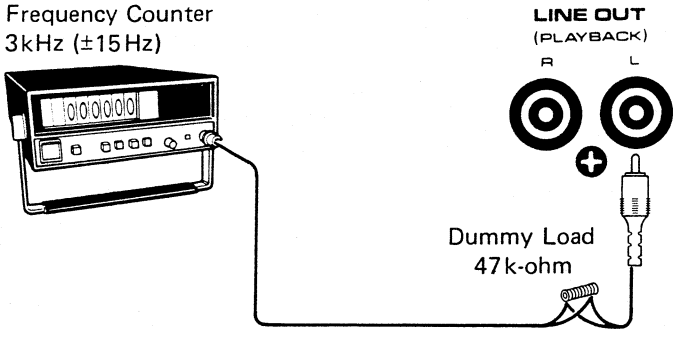
- Input Select Switch . . . . . LINE
- DOLBY NR Switch . . . . . OFF
- Tape Select Switch . . . . . NORMAL
- Timer Record Switch . . . . . OFF
- Input Level Control . . . . . Maximum
- Audio Signal Generator Output 1kHz 0dB, 1V

NOTE:

1. Perform the adjustment in the order described in this manual.
2. Use C125 and C225 (plus sides) in the Amplifier P.C.Board as test points (TP101 and TP201) for the adjustment.

TAPE SPEED ADJUSTMENT

1. Remove the Cover from the unit and connect the frequency counter to the left or right channel LINE OUT as illustrated. Then, insert a 3kHz test tape (Example: TEAC MTT-111) into the cassette holder.

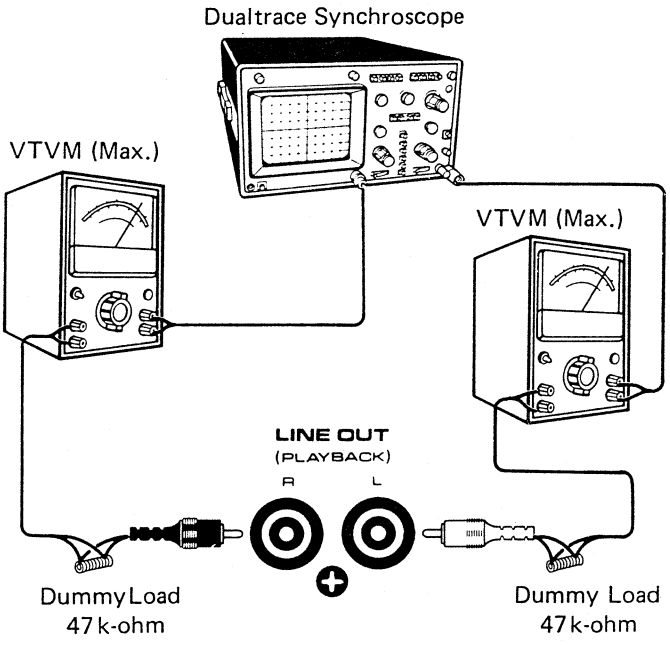


2. While playing back the test tape, adjust the tape speed by turning the potentiometer (P601) in the D.D. Motor Control P.C.Board until the frequency counter reads 3kHz (±15Hz).

HEAD AZIMUTH ADJUSTMENT

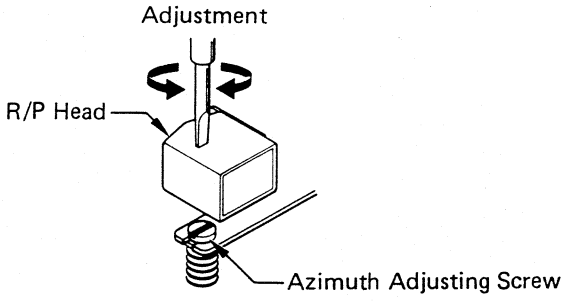
1. Connect the dualtrace synchroscope and the VTVM to the both channel LINE OUT as illustrated and then, set the dualtrace synchroscope as follows:
   - * MODE . . . . . CHOP (chopped)
   - * SOURCE . . . . . INT. (internal), CH1 or CH2
   - * SWEEP MODE . . . . . Auto (automatic)

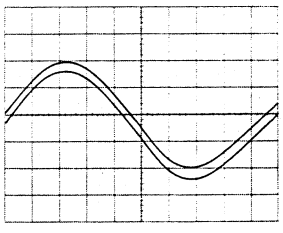
NOTE:
Adjust the field on the synchroscope with the VOL. ADJ. and TIME ADJ.



2. Insert a 10kHz test tape (Example: TEAC MTT-114) into the cassette holder and set the unit in the playback mode.

3. While playing back the test tape, slowly turn the azimuth adjusting screw until the amplitudes of the right and left channel signal wave forms are at maximum and both wave forms are superimposed. Set to optimum at maximum reading of the VTVMs.





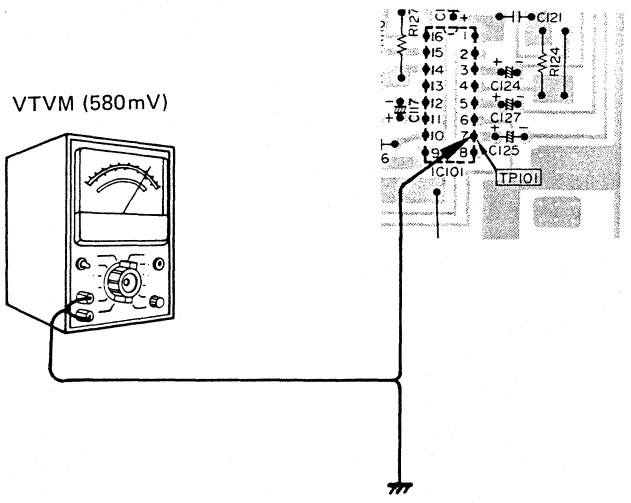
ELECTRICAL ADJUSTMENTS (Continued)

4. After the adjustment, secure the azimuth adjusting screw with paint or glue.

PLAYBACK AND METER SENSITIVITY ADJUSTMENT

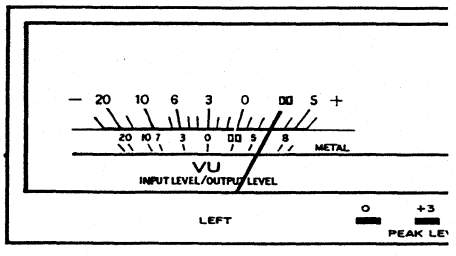
RIGHT CHANNEL

1. Connect the VTVM to the test point TP101 (plus side of C125) as illustrated and insert the test tape for Dolby Level Calibration (Example: TEAC MTT-150) into the cassette holder.



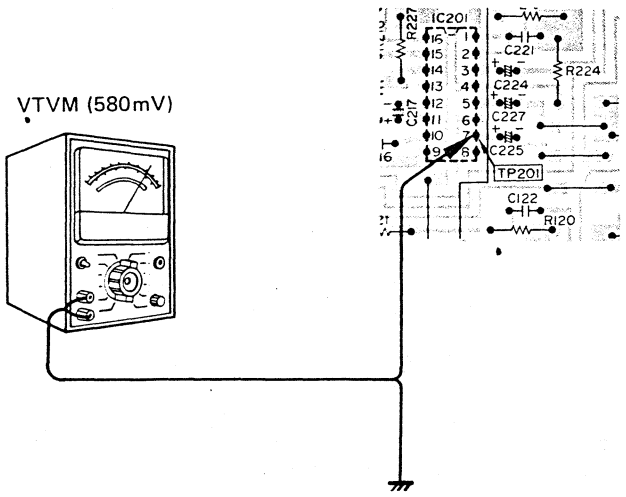
2. While playing back the test tape, adjust the potentiometer (P104) until the signal output of the test tape becomes 580mV on the VTVM.

3. While keeping the unit in the above condition, adjust the potentiometer (P105) until the pointer of the left channel Meter swings to +3VU (DOLBY mark position) as illustrated.



LEFT CHANNEL

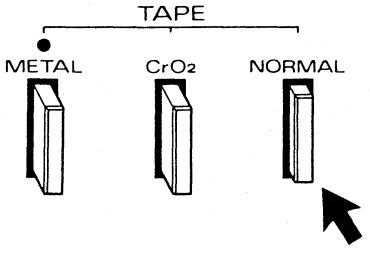
Connect the VTVM to the test point TP201 (plus side of C225) and adjust the potentiometers (VR204 and VR205) for the right channel by following the same procedure as LEFT CHANNEL.



RECORDING AND PLAYBACK FREQUENCY RESPONSE ADJUSTMENT

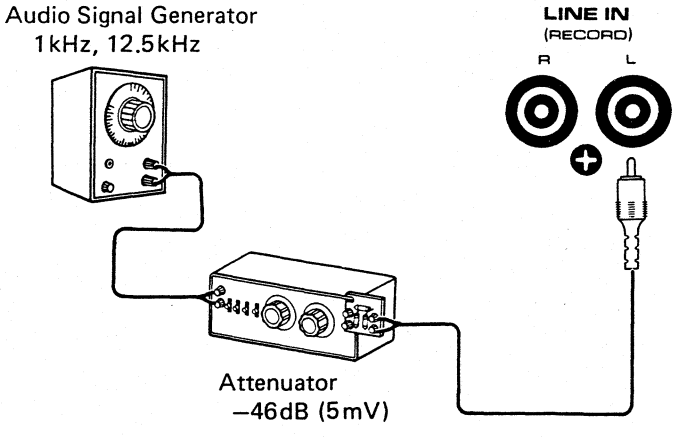
- **For Normal Tape**

  Set the Tape Select Switch to NORMAL and insert a normal tape (Example: TDK AC-221) into the cassette holder. Then, perform the adjustment by the following procedures.

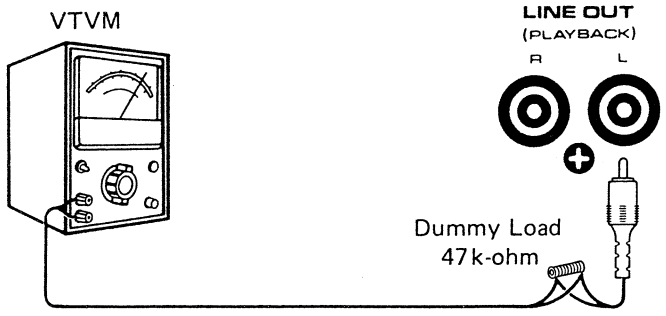


LEFT CHANNEL

1. Connect the audio signal generator and the attenuator to the left channel LINE IN, and the VTVM to the left channel LINE OUT as illustrated.



ELECTRICAL ADJUSTMENTS (Continued)



2. Alternately record the 1kHz and 12.5kHz signals at −46dB (5mV) from the audio signal generator on the tape several times.

3. While playing back the recorded signals, check that the 12.5kHz signal output is identical to the 1kHz signal output or the deviation is ±1dB on the VTVM.

4. If not, adjust the potentiometer (VR101) and re-check the output of each signal by playing back the signals after the recording operation for the signals.

5. Repeat the above adjustment until the specified output is obtained.

RIGHT CHANNEL

Connect the audio signal generator and the attenuator to the right channel LINE IN, and the VTVM to the right channel LINE OUT. Then, adjust the potentiometer (VR201) for the right channel by following the same procedure as LEFT CHANNEL.

- **For Chromium Dioxide Tape**

Set the Tape Select Switch to CrO2 and insert a chromium dioxide tape (Example: TDK AC-512) into the cassette holder. Then, adjust the potentiometers by following the conditions described below and the same procedure as for Normal Tape.

* Input Signals . . . . . 1kHz and 14kHz
* Input Level . . . . . −46dB (5mV)
* Potentiometers for adjustment
Left channel VR102
Right channel VR202

- **For Metal Tape**

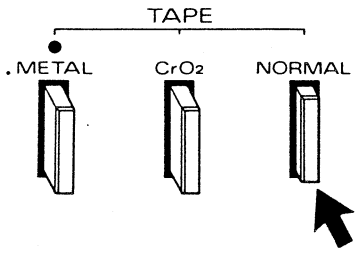
Set the Tape Select Switch to METAL and insert a metal tape (Example: TDK AC-711) into the cassette holder. Then, adjust the potentiometers by following the conditions described below and the same procedure as for Normal Tape.

* Input Signals . . . . . 1kHz and 14kHz
* Input Level . . . . . −46dB (5mV)
* Potentiometers for adjustment
Left channel VR103
Right channel VR203

RECORDING AND PLAYBACK SENSITIVITY ADJUSTMENT

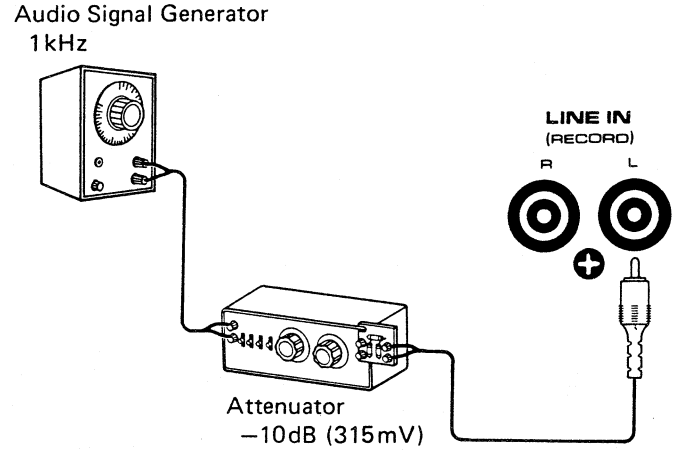
- **For Normal Tape**

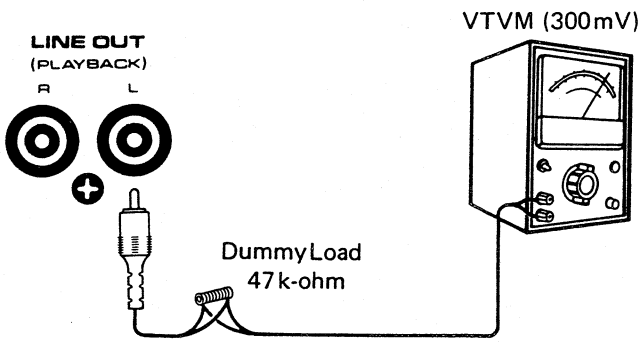
Set the Tape Select Switch to NORMAL and insert a normal tape (Example: TDK AC-221) into the cassette holder. Then, perform the adjustment by the following procedure.



LEFT CHANNEL

1. Connect the audio signal generator and the attenuator to the left channel LINE IN, and the VTVM to the left channel LINE OUT as illustrated.





ELECTRICAL ADJUSTMENTS (Continued)

2. Set the unit in the recording standby mode by pressing the Pause button first and then, the Record and Play buttons.

3. Feed the 1kHz signal from the audio signal generator at −10dB (315mV) into the unit and adjust the left channel Input Level Control (VR101) until the VTVM reads 300mV. After the adjustment, release the pause mode by pressing the Pause button and record the signal on the tape.

4. While playing back the recorded signal, check that the signal output is 300mV (±1dB) on the VTVM.

5. If necessary, adjust the potentiometer (VR106) and repeat the recording and playback operations.

6. Repeat the above adjustment until the specified output is obtained.

RIGHT CHANNEL

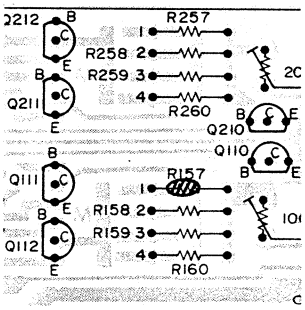
Connect the audio signal generator and the attenuator to the right channel LINE IN, and the VTVM to the right channel LINE OUT. Then, adjust the right channel Input Level Control (VR201) and the potentiometer (VR206) for the right channel by following the same procedure as LEFT CHANNEL.

- **For Chromium Dioxide Tape**

Set the Tape Select Switch to CrO2 and insert a chromium dioxide tape (Example: TDK AC-512) into the cassette holder. Then, feed the 1kHz signal from the audio signal generator at −10dB (315mV) into the unit and perform the adjustment by following the same procedure as for Normal Tape.

LEFT CHANNEL

Select the pattern on the collector side of the Transistor Q111 and one of the patterns (1 – 4) of the Resistors R157 – R160 and connect them, so that the output of the 1kHz signal becomes 300mV (±1.5dB) on the VTVM.



RIGHT CHANNEL

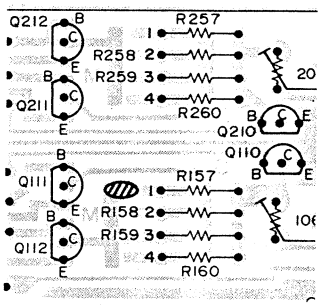
Select the pattern on the collector side of the Transistor Q211 and one of the patterns (1 – 4) of the Resistors R257 – R260 and connect them, so that the output of the 1kHz signal becomes 300mV (±1.5dB) on the VTVM.

- **For Metal Tape**

Set the Tape Select Switch to METAL and insert a metal tape (Example: TDK AC-711) into the cassette holder. Then, feed the 1kHz signal from the audio signal generator at −10dB (315mV) into the unit and perform the adjustment by following the same procedure as for Normal Tape.

LEFT CHANNEL

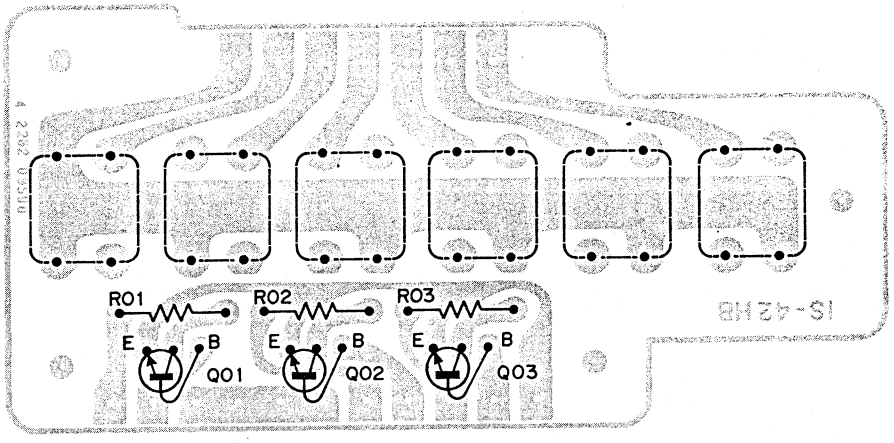
Select the pattern on the collector side of the Transistor Q112 and one of the patterns (1 – 4) of the Resistors R157 – R160 and then, connect them, so that the output of the 1kHz signal becomes 300mV (±1.5dB) on the VTVM.



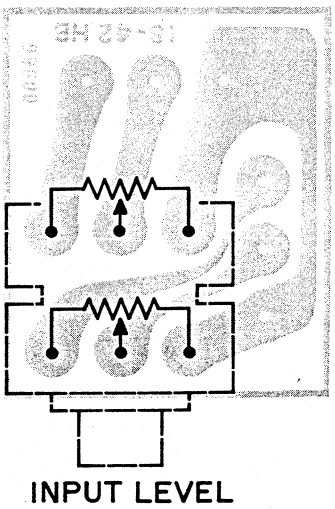
RIGHT CHANNEL

Select the pattern on the collector side of the Transistor Q212 and one of the patterns (1 – 4) of the Resistors R257 – R260 and then, connect them, so that the output of the 1kHz signal becomes 300mV (±1.5dB) on the VTVM.

SWITCH BOARD P.C.BOARD
(BOTTOM VIEW)

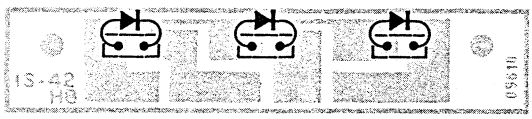


VOLUME P.C.BOARD
(BOTTOM VIEW)



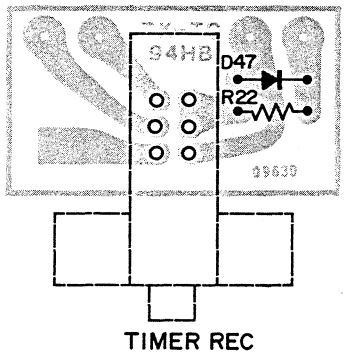
REGULATOR P.C.BOARD
(BOTTOM VIEW)

PEAK LEVEL P.C.BOARD
(BOTTOM VIEW)

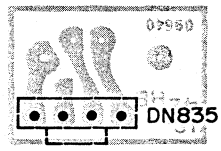


DOLBY IND. P.C.BOARD
(BOTTOM VIEW)

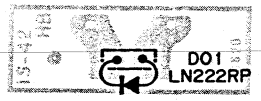
TIMER P.C.BOARD
(BOTTOM VIEW)



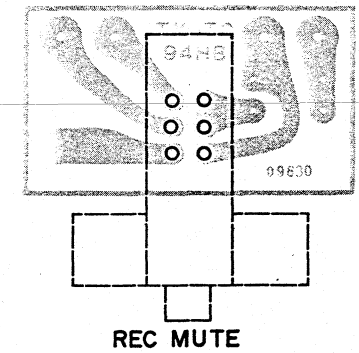
HALL IC P.C.BOARD
(BOTTOM VIEW)



L.E.D. P.C.BOARD
(BOTTOM VIEW)

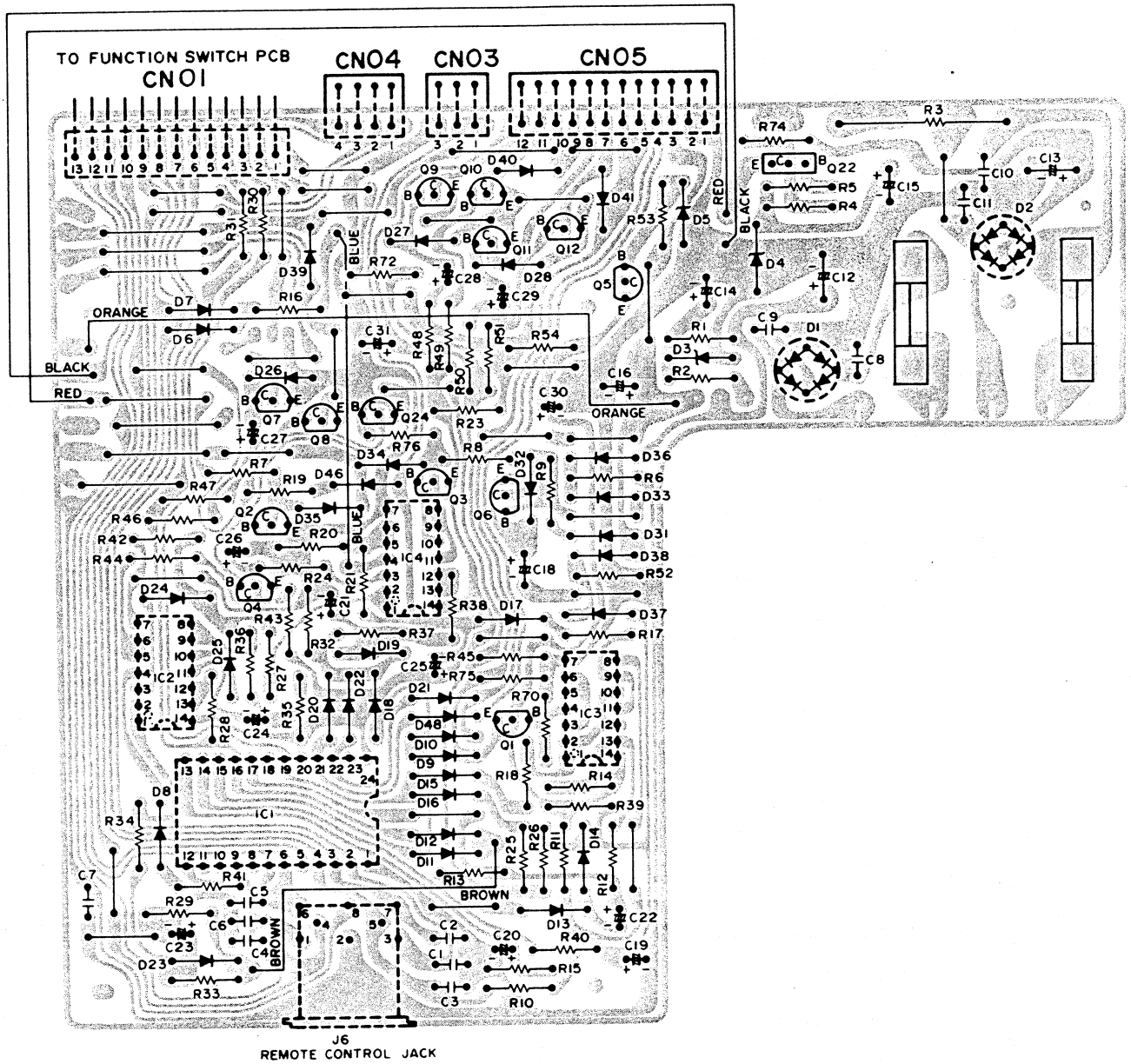


REC MUTE P.C.BOARD
(BOTTOM VIEW)



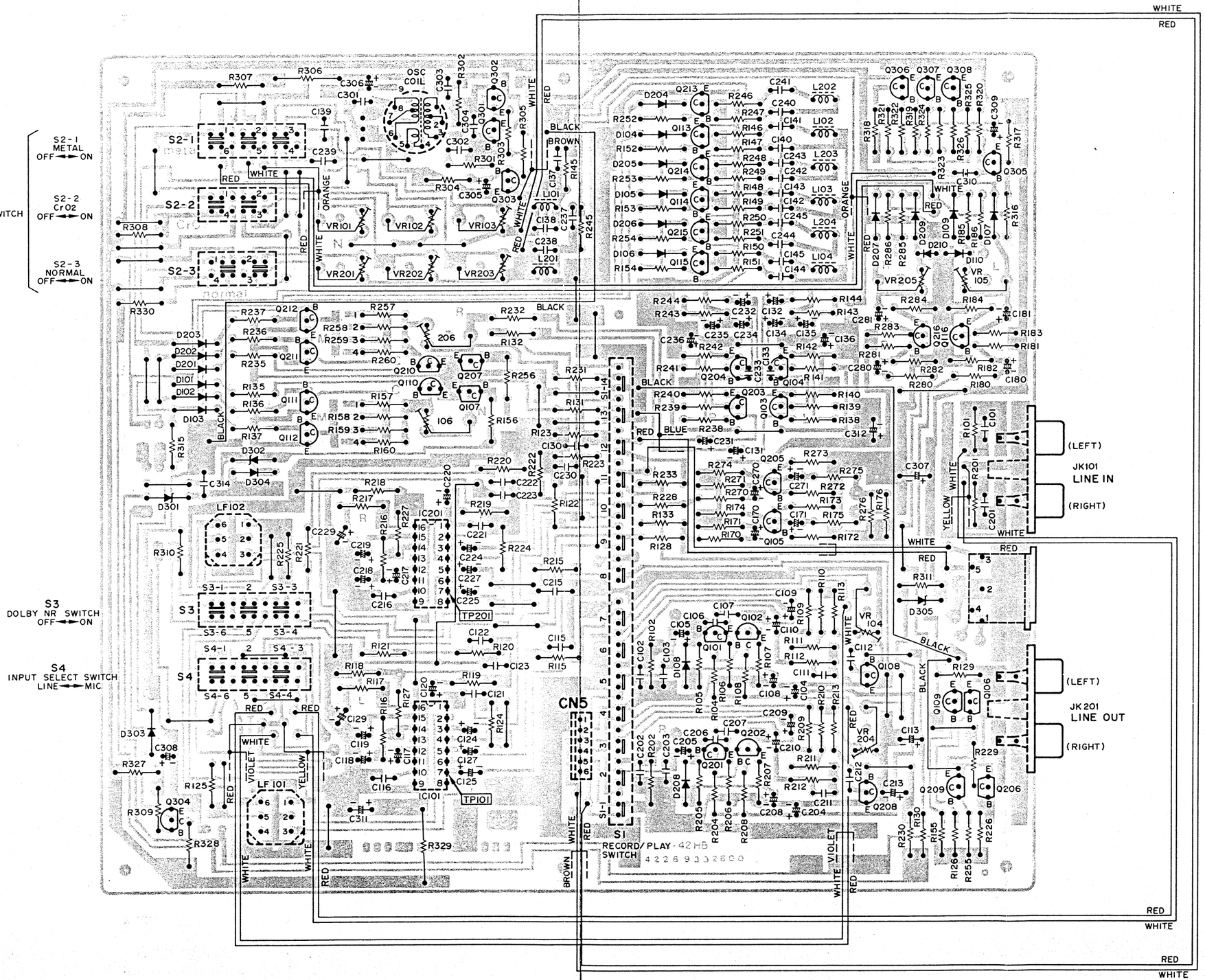
CONTROL P.C.BOARD

(BOTTOM VIEW)



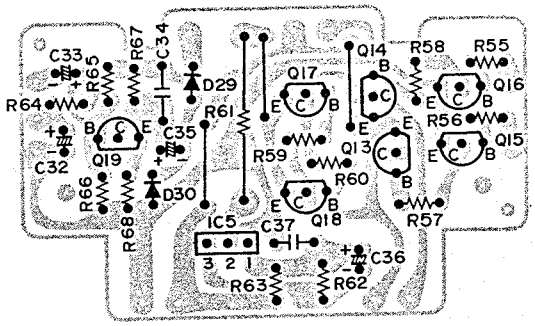
RP, PB, PRE, OSC P.C.BOARD

(BOTTOM VIEW)



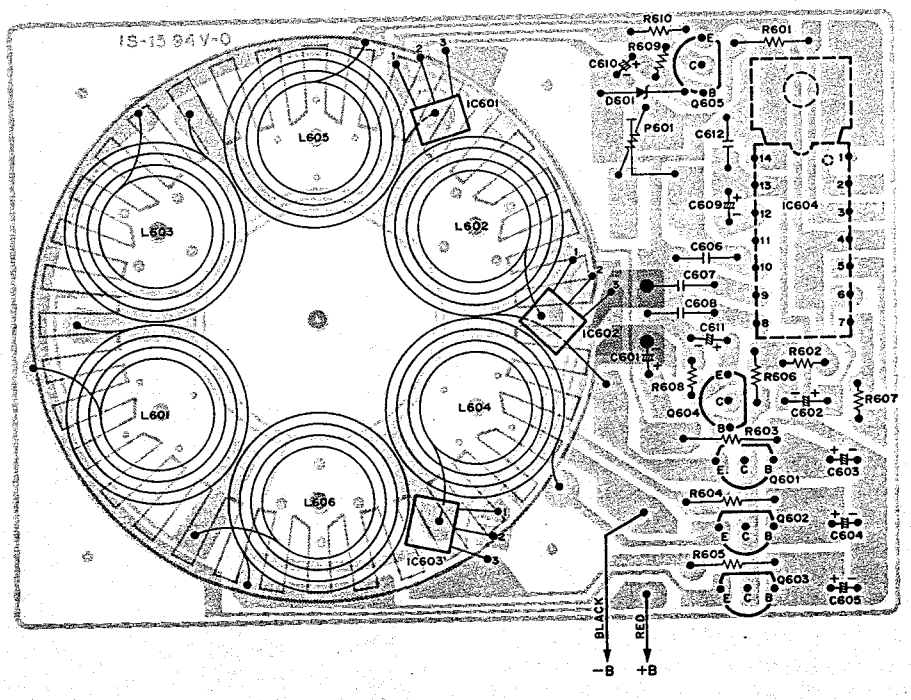
SUB CONTROL P.C.BOARD

(BOTTOM VIEW)



DD GOVENOR P.C.BOARD

(BOTTOM VIEW)



PARTS LIST

RP, PB, PRE, OSC P.C.B. Assy
131 0 4001 08161

Ref. No.	Parts Number	Description
	4 2359 71550	DIN Socket 5P
	4 2369 71452	Connector 6P
JK101,201	4 2359 73602	2P Jack
L101	4 2729 70290	Coil 333
L102,103 104	4 2729 70250	Coil 332
L201	4 2729 70290	Coil 333
L202,203 204	4 2729 70250	Coil 332
LF101,201	4 2729 70341	Dolby Filter
S01	4 2319 73900	Slide Switch
S02	4 2319 74450	Push Switch 6
S03,04	4 2319 74470	Push Switch
VR101	4 2222 00960	VR 100k-B (Bias Adj.)
VR102	4 2222 00960	VR 100k-B (Bias Adj.)
VR103	4 2222 00960	VR 100k-B (Bias Adj.)
VR104	4 2222 01040	VR 20k-B (PB Gain Adj.)
VR105	4 2222 01400	VR 10k-B (Meter Adj.)
VR106	4 2222 01040	VR 20k-B (Rec./PB Sens. Adj.)
VR201	4 2222 00960	VR 100k-B (Bias Adj.)
VR202	4 2222 00960	VR 100k-B (Bias Adj.)
VR203	4 2222 00960	VR 100k-B (Bias Adj.)
VR204	4 2222 01040	VR 20k-B (PB Gain Adj.)
VR205	4 2222 01400	VR 10k-B (Meter Adj.)
VR206	4 2222 01040	VR 20k-B (Rec./PB Sens. Adj.)
OSC01	4 2582 00400	OSC Coil
	CAPACITORS	
C101	C1HCDK101SL	Ceramic 100 pF 50V ±10%
C102	C1HYDK102R	Ceramic 0.001 μF 50V ±10%
C103	C1HYDK561R	Ceramic 560 pF 50V ±10%
C104	C1CRE-476A	Electrolytic 47 μF 16V
C105	C1HRE-106A	Electrolytic 10 μF 50V
C106	C1HYDK471R	Ceramic 470 pF 50V ±10%
C107	C1HCDK560SL	Ceramic 56 pF 50V ±10%
C108	C1ARE-476A	Electrolytic 47 μF 10V
C109,110	C1HRE-106A	Electrolytic 10 μF 50V
C111	C1HFRK103A	Mylar 0.01 μF 50V ±10%
C112	C1HFRK223A	Mylar 0.022 μF 50V ±10%
C113	C1HRE-105A	Electrolytic 1 μF 50V
C115	C1HYDK221R	Ceramic 220 pF 50V ±10%
C116	C1HFRK473A	Mylar 0.047 μF 50V ±10%
C117	C1CRE-106A	Electrolytic 10 μF 16V
C118	C1CUEX104A	Sint. Alu. 0.1 μF 16V +40,−20%
C119	C1CUEX334A	Sint. Alu. 0.33 μF 16V +40,−20%
C120	C1CRE-106A	Electrolytic 10 μF 16V
C121	C1HFRK472A	Mylar 0.0047 μF 50V ±10%
C122	C1HFRK562A	Mylar 0.0056 μF 50V ±10%
C123	C1HFRK273A	Mylar 0.027 μF 50V ±10%
C124,125	C1CRE-106A	Electrolytic 10 μF 16V
C127	C1CRE-105A	Electrolytic 1 μF 16V
C129	C1CRE-227A	Electrolytic 220 μF 16V
C130	C1HYDK102R	Ceramic 0.001 μF 50V ±10%
C131	C1HRE-474A	Electrolytic 0.47 μF 50V
C132	C1CRE-106A	Eelctrolytic 10 μF 16V
C133	C1HCDJ150SL	Ceramic 15 pF 50V ±5%
C134	C1CRE-106A	Electrolytic 10 μF 16V
C135	C1HRE-474A	Electrolytic 0.47 μF 50V
C136	C1ARE-107A	Electrolytic 100 μF 10V
C137	C1HYDK681R	Ceramic 680 pF 50V ±10%

Ref. No.	Parts Number	Description
	CAPACITORS	
C138	C1HCDK680SL	Ceramic 68 pF 50V ±10%
C139	C1HCDK151SL	Ceramic 150 pF 50V ±10%
C140	C1HFRK393A	Mylar 0.039 μF 50V ±10%
C141	C1HFRK273A	Mylar 0.027 μF 50V ±10%
C142	C1HFRK473A	Mylar 0.047 μF 50V ±10%
C143	C1HFRK273A	Mylar 0.027 μF 50V ±10%
C144	C1HFRK473A	Mylar 0.047 μF 50V ±10%
C145	C1HFRK183A	Mylar 0.018 μF 50V ±10%
C170,171	C1HRE-106A	Electrolytic 10 μF 50V
C180	C1CRE-106A	Electrolytic 10 μF 16V
C181	C1CRE-105A	Electrolytic 1 μF 16V
C201	C1HCDK101SL	Ceramic 100 pF 50V ±10%
C202	C1HYDK102R	Ceramic 0.001 μF 50V ±10%
C203	C1HYDK561R	Ceramic 560 pF 50V ±10%
C204	C1CRE-476A	Electrolytic 47 μF 16V
C205	C1HRE-106A	Electrolytic 10 μF 50V
C206	C1HYDK471R	Ceramic 470 pF 50V ±10%
C207	C1HCDK560SL	Ceramc 56 pF 50V ±10%
C208	C1ARE-476A	Electrolytic 47 μF 10V
C209,210	C1HRE-106A	Electrolytic 10 μF 50V
C211	C1HFRK103A	Mylar 0.01 μF 50V ±10%
C212	C1HFRK223A	Mylar 0.022 μF 50V ±10%
C213	C1HRE-105A	Electrolytic 1 μF 50V
C215	C1HYDK221R	Ceramic 220 pF 50V ±10%
C216	C1HFRK473A	Mylar 0.047 μF 50V ±10%
C217	C1CRE-106A	Electrolytic 10 μF 16V
C218	C1CUEX104A	Sint. Alu. 0.1 μF 16V +40,−20%
C219	C1CUEX334A	Sint. Alu. 0.33 μF 16V +40,−20%
C220	C1CRE-106A	Electrolytic 10 μF 16V
C221	C1HFRK472A	Mylar 0.0047 μF 50V ±10%
C222	C1HFRK562A	Mylar 0.0056 μF 50V ±10%
C223	C1HFRK273A	Mylar 0.027 μF 50V ±10%
C224,225	C1CRE-106A	Electrolytic 10 μF 16V
C227	C1CRE-105A	Electrolytic 1 μF 16V
C229	C1CRE-227A	Electrolytic 220 μF 16V
C230	C1HYDK102R	Ceramic 0.001 μF 50V ±10%
C231	C1HRE-474A	Electrolytic 0.47 μF 50V
C232	C1CRE-106A	Electrolytic 10 μF 16V
C233	C1HCDJ150SL	Ceramic 15 pF 50V ±5%
C234	C1CRE-106A	Electrolytic 10 μF 16V
C235	C1HRE-474A	Electrolytic 0.47 μF 50V
C236	C1ARE-107A	Electrolytic 100 μF 10V
C237	C1HYDK681R	Ceramic 680 pF 50V ±10%
C238	C1HCDK680SL	Ceramic 68 pF 50V ±10%
C239	C1HCDK151SL	Ceramic 150 pF 50V ±10%
C240	C1HFRK393A	Mylar 0.039 μF 50V ±10%
C241	C1HFRK273A	Mylar 0.027 μF 50V ±10%
C242	C1HFRK473A	Mylar 0.047 μF 50V ±10%
C243	C1HFRK273A	Mylar 0.027 μF 50V ±10%
C244	C1HFRK473A	Mylar 0.047 μF 50V ±10%
C245	C1HFRK183A	Mylar 0.018 μF 50V ±10%
C270,271	C1HRE-106A	Electrolytic 10 μF 50V
C280	C1CRE-106A	Electrolytic 10 μF 16V
C281	C1CRE-105A	Electrolytic 1 μF 16V
C301	C2BSEJ272A	Styrol 2700 pF 125V ±5%
C302,303	C1HFRK472A	Mylar 0.0047 μF 50V ±10%
C304	C1HFRK103A	Mylar 0.01 μF 50V ±10%
C305	C1ARE-107A	Electrolytic 100 μF 10V

PARTS LIST (Continued)

Ref. No.	Parts Number	Description
	CAPACITORS	
C306	C1HRE-105A	Electrolytic 1 μF 50V
C307	C1ERE-477A	Electrolytic 470 μF 25V
C308	C1HRE-105A	Electrolytic 1 μF 50V
C309	C1ARE-475A	Electrolytic 4.7 μF 10V
C310	C1HFRK102A	Mylar 0.001 μF 50V ±10%
C311,312	C1ERE-477A	Electrolytic 470 μF 25V
C314	C1HFRK103A	Mylar 0.01 μF 50V ±10%
	SEMICONDUCTORS	
D101,102 103,104,105 106,107,108	202 5 3880 44810	Diode, DS448
D109,110	202 5 9110 18820	Diode, 1S188
D201,202 203,204,205 206,207,208	202 5 3880 44810	Diode, DS448
D209,210	202 5 9110 18820	Diode, 1S188
D301,302	202 5 3200 03310	Diode, GZA3.3
D303,304	202 5 3880 44810	Diode, DS448
D305	202 5 3210 12010	Diode, GZA12L
IC101,201	4 2069 70380	IC, NE646B
Q101,102 103,104,105	203 5 5251 57160	TR 2SC1571 F
Q106,107	203 5 4921 01260	TR 2SD1012 F, G
Q108,109 110,111,112,113 114,115,116	TTT-2SC1815-GR	TR 2SC1815
Q201,202 203,204,205	203 5 5251 57160	TR 2SC1571 F
Q206,207	203 5 4921 01260	TR 2SD1012 F, G
Q208,209 210,211,212,213,214,215 216,301,302,303,304,305 306,307,308	TTT-2SC1815-GR	TR 2SC1815
	RESISTORS	
R101	R2EDZJ223APA	Carbon 22k 1/4W ±5%
R102	R2EDZJ103APA	Carbon 10k 1/4W ±5%
R104	R2EDZJ274APA	Carbon 270k 1/4W ±5%
R105	R2EDZJ154APA	Carbon 150k 1/4W ±5%
R106	R2EDZJ151APA	Carbon 150 1/4W ±5%
R107	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R108	R2EDZJ153APA	Carbon 15k 1/4W ±5%
R109	R2EDZJ822APA	Carbon 8.2k 1/4W ±5%
R110	R2EDZJ222APA	Carbon 2.2k 1/4W ±5%
R111	R2EDZJ113APA	Carbon 11k 1/4W ±5%
R112	R2EDZJ564APA	Carbon 560k 1/4W ±5%
R113	R2EDZJ272APA	Carbon 2.7k 1/4W ±5%
R115	R2EDZJ222APA	Carbon 2.2k 1/4W ±5%
R116	R2EDZJ274APA	Carbon 270k 1/4W ±5%
R117,118	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R119	R2EDZJ473APA	Carbon 47k 1/4W ±5%
R120	R2EDZJ105APA	Carbon 1M 1/4W ±5%
R121	R2EDZJ181APA	Carbon 180 1/4W ±5%
R122,123	R2EDZJ473APA	Carbon 47k 1/4W ±5%
R124	R2EDZJ332APA	Carbon 3.3k 1/4W ±5%
R125	R2EDZJ105APA	Carbon 1M 1/4W ±5%
R126	R2EDZJ123APA	Carbon 12k 1/4W ±5%
R127	R2EDZJ184APA	Carbon 180k 1/4W ±5%
R128	R2EDZJ102APA	Carbon 1k 1/4W ±5%

Ref. No.	Parts Number	Description
	RESISTORS	
R129	R2EDZJ472APA	Carbon 4.7k 1/4W ±5%
R130	R2EDZJ473APA	Carbon 47k 1/4W ±5%
R131	R2EDZJ183APA	Carbon 18k 1/4W ±5%
R132	R2EDZJ101APA	Carbon 100 1/4W ±5%
R133	R2EDZJ472APA	Carbon 4.7k 1/4W ±5%
R135,136 137	R2EDZJ473APA	Carbon 47k 1/4W ±5%
R138	R2EDZJ124APA	Carbon 120k 1/4W ±5%
R139	R3EDZJ123APA	Carbon 12k 1/4W ±5%
R140	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R141	R2EDZJ272APA	Carbon 2.7k 1/4W ±5%
R142	R2EDZJ681APA	Carbon 680 1/4W ±5%
R143	R2EDZJ272APA	Carbon 2.7k 1/4W ±5%
R144	R2EDZJ392APA	Carbon 3.9k 1/4W ±5%
R145	R2EDZJ153APA	Carbon 15k 1/4W ±5%
R146	R2EDZJ101APA	Carbon 100 1/4W ±5%
R147	R2EDZJ562APA	Carbon 5.6k 1/4W ±5%
R148	R2EDZJ101APA	Carbon 100 1/4W ±5%
R149	R2EDZJ122APA	Carbon 1.2k 1/4W ±5%
R150	R2EDZJ101APA	Carbon 100 1/4W ±5%
R151	R2EDZJ182APA	Carbon 1.8k 1/4W ±5%
R152,153 154	R2EDZJ473APA	Carbon 47k 1/4W ±5%
R155,156	R2EDZJ103APA	Carbon 10k 1/4W ±5%
R157	R2EDZJ182APA	Carbon 1.8k 1/4W ±5%
R158	R2EDZJ472APA	Carbon 4.7k 1/4W ±5%
R159	R2EDZJ103APA	Carbon 10k 1/4W ±5%
R160	R2EDZJ153APA	Carbon 15k 1/4W ±5%
R170	R2EDZJ332APA	Carbon 3.3k 1/4W ±5%
R171	R2EDZJ104APA	Carbon 100k 1/4W ±5%
R172	R2EDZJ153APA	Carbon 15k 1/4W ±5%
R173	R2EDZJ101APA	Carbon 100 1/4W ±5%
R174	R2EDZJ681APA	Carbon 680 1/4W ±5%
R175	R2EDZJ820APA	Carbon 82 1/4W ±5%
R176	R2EDZJ392APA	Carbon 3.9k 1/4W ±5%
R180	R2EDZJ103APA	Carbon 10k 1/4W ±5%
R181	R2EDZJ184APA	Carbon 180k 1/4W ±5%
R182	R2EDZJ103APA	Carbon 10k 1/4W ±5%
R183	R2EDZJ332APA	Carbon 3.3k 1/4W ±5%
R184	R2EDZJ121APA	Carbon 120 1/4W ±5%
R185	R2EDZJ182APA	Carbon 1.8k 1/4W ±5%
R186	R2EDZJ272APA	Carbon 2.7k 1/4W ±5%
R201	R2EDZJ223APA	Carbon 22k 1/4W ±5%
R202	R2EDZJ103APA	Carbon 10k 1/4W ±5%
R204	R2EDZJ274APA	Carbon 270k 1/4W ±5%
R205	R2EDZJ154APA	Carbon 150k 1/4W ±5%
R206	R2EDZJ151APA	Carbon 150 1/4W ±5%
R207	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R208	R2EDZJ153APA	Carbon 15k 1/4W ±5%
R209	R2EDZJ822APA	Carbon 8.2k 1/4W ±5%
R210	R2EDZJ222APA	Carbon 2.2k 1/4W ±5%
R211	R2EDZJ113APA	Carbon 11k 1/4W ±5%
R212	R2EDZJ564APA	Carbon 560k 1/4W ±5%
R213	R2EDZJ272APA	Carbon 2.7k 1/4W ±5%
R215	R2EDZJ222APA	Carbon 2.2k 1/4W ±5%
R216	R2EDZJ274APA	Carbon 270k 1/4W ±5%
R217,218	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R219	R2EDZJ473APA	Carbon 47k 1/4W ±5%
R220	R2EDZJ105APA	Carbon 1M 1/4W ±5%
R221	R2EDZJ181APA	Carbon 180 1/4W ±5%
R222,223	R2EDZJ473APA	Carbon 47k 1/4W ±5%

PARTS LIST (Continued)

Ref. No.	Parts Number	Description			
	RESISTORS				
R224	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R225	R2EDZJ105APA	Carbon	1M	1/4W	±5%
R226	R2EDZJ123APA	Carbon	12k	1/4W	±5%
R227	R2EDZJ184APA	Carbon	180k	1/4W	±5%
R228	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R229	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R230	R2EDZJ473APA	Carbon	47k	1/4W	±5%
R231	R2EDZJ183APA	Carbon	18k	1/4W	±5%
R232	R2EDZJ101APA	Carbon	100	1/4W	±5%
R233	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R235,236 237	R2EDZJ473APA	Carbon	47k	1/4W	±5%
R238	R2EDZJ124APA	Carbon	120k	1/4W	±5%
R239	R2EDZJ123APA	Carbon	12k	1/4W	±5%
R240	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R241	R2EDZJ272APA	Carbon	2.7k	1/4W	±5%
R242	R2EDZJ681APA	Carbon	680	1/4W	±5%
R243	R2EDZJ272APA	Carbon	2.7k	1/4W	±5%
R244	R2EDZJ392APA	Carbon	3.9k	1/4W	±5%
R245	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R246	R2EDZJ101APA	Carbon	100	1/4W	±5%
R247	R2EDZJ562APA	Carbon	5.6k	1/4W	±5%
R248	R2EDZJ101APA	Carbon	100	1/4W	±5%
R249	R2EDZJ122APA	Carbon	1.2k	1/4W	±5%
R250	R2EDZJ101APA	Carbon	100	1/4W	±5%
R251	R2EDZJ182APA	Carbon	1.8k	1/4W	±5%
R252,253 254	R2EDZJ473APA	Carbon	47k	1/4W	±5%
R255,256	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R257	R2EDZJ182APA	Carbon	1.8k	1/4W	±5%
R258	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R259	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R260	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R270	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R271	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R272	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R273	R2EDZJ101APA	Carbon	100	1/4W	±5%
R274	R2EDZJ681APA	Carbon	680	1/4W	±5%
R275	R2EDZJ820APA	Carbon	82	1/4W	±5%
R276	R2EDZJ392APA	Carbon	3.9k	1/4W	±5%
R280	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R281	R2EDZJ184APA	Carbon	180k	1/4W	±5%
R282	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R283	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R284	R2EDZJ121APA	Carbon	120	1/4W	±5%
R285	R2EDZJ182APA	Carbon	1.8k	1/4W	±5%
R286	R2EDZJ272APA	Carbon	2.7k	1/4W	±5%
R301,302	R2EDZJ823APA	Carbon	82k	1/4W	±5%
R303	R2EDZJ100APA	Carbon	10	1/4W	±5%
R304	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R305	R2EDZJ562APA	Carbon	5.6k	1/4W	±5%
R306	R3AXBJ121A	Oxide Metal Film	120	1W	±5%
R307	R2EDZJ181APA	Carbon	180	1/4W	±5%
R308	R2EDZJ271APA	Carbon	270	1/4W	±5%
R309	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R310	R2EDZJ561APA	Carbon	560	1/4W	±5%
R311	R2EDZJ822APA	Carbon	8.2k	1/4W	±5%
R315	R2EDZJ222APA	Carbon	2.2k	1/4W	±5%
R316	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R317	R2EDZJ561APA	Carbon	560	1/4W	±5%
R318,319 320	R2EDZJ122APA	Carbon	1.2k	1/4W	±5%
R321	R2EDZJ393APA	Carbon	39k	1/4W	±5%
R322	R2EDZJ472APA	Carbon	4.7k	1/4W	±5%
R323	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R324	R2EDZJ272APA	Carbon	2.7k	1/4W	±5%
R325	R2EDZJ562APA	Carbon	5.6k	1/4W	±5%
R326	R2EDZJ182APA	Carbon	1.8k	1/4W	±5%
R327	R2EDZJ683APA	Carbon	68k	1/4W	±5%
R328	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R329	R3AXBJ221A	Oxide Metal Film	220	1W	±5%
R330	R2EDZJ823APA	Carbon	82k	1/4W	±5%

CONTROL P.C.B. Assy
131 0 4001 08171

Ref. No.	Parts Number	Description
⚠	4 2349 20240	Fuse T 1.6 A
⚠	4 2349 20400	Fuse T 630 mA
CN01	4 2369 71650	Connector 13P
CN02	4 2359 74850	DIN Socket 8P
CN03	4 2369 73100	Connector 3P
CN04	4 2369 73110	Connector 4P
CN05	4 2369 73120	Connector 12P
	CAPACITORS	
C01,02 03,04,05,06,07	C1HYDZ103A	Ceramic 0.01 μF 50V +80,–20%
C08,09 10,11	C1HYDZ473A	Ceramic 0.047 μF 50V +80,–20%
C12	C1ERE-228A	Electrolytic 2200 μF 25V
C13	C1HRE-108A	Electrolytic 1000 μF 50V
C14	C1CRE-477A	Electrolyitc 470 μF 16V
C15	C1ERE-477A	Electrolytic 470 μF 25V
C16,18	C1CRE-108A	Electrolytic 1000 μF 16V
C19	4 2232 00640	Electrolytic 10 μF 16V ±10%
C20	C1AUEX225A	Sint. Alu. 2.2 μF 10V +40,–20%
C21	C1ARE-474A	Electrolytic 0.47 μF 10V
C22	C1ARE-107A	Electrolytic 100 μF 10V
C23	C1HRE-225A	Electrolytic 2.2 μF 50V
C24	C1ARE-475A	Electrolytic 4.7 μF 10V
C25	4 2232 00640	Electrolytic 10 μF 16V ±10%
C26	C1ARE-105A	Electrolytic 1 μF 10V
C27	C1ARE-476A	Electrolytic 47 μF 10V
C28	C1ARE-336A	Electrolytic 33 μF 10V
C29	C1ARE-476A	Electrolytic 47 μF 10V
C30	C1ARE-107A	Electrolytic 100 μF 10V
C31	C0JRE-477A	Electrolytic 470 μF 6.3V
	SEMICONDUCTORS	
D01,02	DGG-W02	Bridge Diode, W02
D03	202 5 3210 13020	Diode, GZA13U
D04	202 5 3210 24020	Diode, GZA24U
D05	202 5 3210 08210	Diode, GZA8.2L
D06,07 08,09,10,11,12,13,14,15,16,17,18,19,20 21,22,23,24,25,26,27,28,29,30,31,32,33 34,35,36,37,38	202 5 3880 44810	Diode, DS448
D39,40 41	202 5 2500 13541	Diode, DS135D
D46,48	202 5 3880 44810	Diode, DS448

PARTS LIST (Continued)

Ref. No.	Parts Number	Description
	SEMICONDUCTORS	
IC01	4 2069 70390	IC, TC9121P
IC02,03 04	206 5 9504 01110	IC, LC4011
Q01,02 03,04,05	TTT-2SC1815-GR	TR 2SC1815 GR, BL
Q06	203 5 4580 69850	TR 2SB698 E, F
Q07,08 09,10,11,12	203 5 6940 54560	TR 2SD545 F
Q22	4 2039 70601	TR 2SC1846R
Q24	TTT-2SC1815-BL	TR 2SC1815 BL

	RESISTORS				
R01	R2EDZJ561APA	Carbon	560	1/4W	±5%
R02	R2EDZJ100APA	Carbon	10	1/4W	±5%
R03	R3DZPK270A	Fuse	27	2W	±10%
R04	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R05	R2EDZJ100APA	Carbon	10	1/4W	±5%
R06	R2EDZJ333APA	Carbon	33k	1/4W	±5%
R07,08	R2EDZJ272APA	Carbon	2.7k	1/4W	±5%
R09	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R10	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R11	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R12	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R13	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R14	R2EDZJ154APA	Carbon	150k	1/4W	±5%
R15	R2EDZJ333APA	Carbon	33k	1/4W	±5%
R16	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R17,18	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R19	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R20	R2EDZJ105APA	Carbon	1M	1/4W	±5%
R21	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R23	R2EDZJ561APA	Carbon	560	1/4W	±5%
R24	R2EDZJ104APA	Carbon	100k	1/4W	±5%
R25	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R26	R2EDZJ101APA	Carbon	100	1/4W	±5%
R27	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R28	R2EDZJ154APA	Carbon	150k	1/4W	±5%
R29	R2EDZJ333APA	Carbon	33k	1/4W	±5%
R30,31	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R32	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R33	R2EDZJ154APA	Carbon	150k	1/4W	±5%
R34	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R35	R2EDZJ154APA	Carbon	150k	1/4W	±5%
R36	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R37	R2EDZJ224APA	Carbon	220k	1/4W	±5%
R38	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R39	R2EDZJ514APA	Carbon	510k	1/4W	±5%
R40	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R41	R2EDZJ332APA	Carbon	3.3k	1/4W	±5%
R42	R2EDZJ154APA	Carbon	150k	1/4W	±5%
R43	R2EDZJ333APA	Carbon	33k	1/4W	±5%
R44	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R45	R2EDZJ473APA	Carbon	47k	1/4W	±5%
R46	R2EDZJ471APA	Carbon	470	1/4W	±5%
R47	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R48	R2EDZJ471APA	Carbon	470	1/4W	±5%
R49	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R50	R2EDZJ471APA	Carbon	470	1/4W	±5%
R51	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R52	R2EDZJ103APA	Carbon	10k	1/4W	±5%
R53	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R54	R2EDZJ561APA	Carbon	560	1/4W	±5%
R70	R2EDZJ272APA	Carbon	2.7k	1/4W	±5%
R72	R2EDZJ153APA	Carbon	15k	1/4W	±5%
R74	R2EDPJ3R3A	Carbon	3.3	1/4W	±5%
R75	R2EDZJ102APA	Carbon	1k	1/4W	±5%
R76	R2EDZJ104APA	Carbon	100k	1/4W	±5%

REGULATOR P.C.B. Assy
131 0 4001 08190

Ref. No.	Parts Number	Description
	SEMICONDUCTORS	
Q21	203 5 7330 61261	TR 2SD612K

SWITCH BOARD P.C.B. Assy
131 0 4001 08200

Ref. No.	Parts Number	Description
	4 2312 02750	Key Board Switch
	4 6122 02500	Pilot Lamp
	SEMICONDUCTORS	
Q01,02 03	203 5 5000 53660	TR 2SC536 F, G

	RESISTORS				
R01,02 03	R2EDPJ121A	Carbon	120	1/4W	±5%

VOLUME P.C.B. Assy
131 0 4001 08220

Ref. No.	Parts Number	Description
	4 2222 02210	VR 50k-Ax2

PEAK LEVEL P.C.B. Assy
131 0 4001 08230

Ref. No.	Parts Number	Description
	SEMICONDUCTORS	
D310,311 312	DWW-LN224RP	L.E.D., LN224RP (Red)

DOLBY IND. P.C.B. Assy
131 0 4001 08240

Ref. No.	Parts Number	Description
	SEMICONDUCTOR	
	DWW-LN322GP	L.E.D., LN322GP (Green)

PARTS LIST (Continued)

REC MUTE P.C.B. Assy
131 0 4001 08250

Ref. No.	Parts Number	Description
	4 2312 02940	Switch Push 1Key

TIMER P.C.B. Assy
131 0 4001 08260

Ref. No.	Parts Number	Description
	4 2312 02410	Switch Push 1Key
	4 2359 75051	Connector 3P Assy
	SEMICONDUCTOR	
D47	202 5 2810 44255	Diode, DS442
	RESISTOR	
R22	R2EDUJ102A	Carbon 1k 1/4W ±5%

HALL IC P.C.B. Assy
131 0 4001 08270

Ref. No.	Parts Number	Description
	SEMICONDUCTOR	
IC06	IWW-DN835	IC, DN835

L.E.D. P.C.B. Assy
131 0 4001 08340

Ref. No.	Parts Number	Description
	SEMICONDUCTOR	
D309	DWW-LN222RP	L.E.D., LN222RP (Red)

SUB CONTROL P.C.B. Assy
131 0 4001 08180

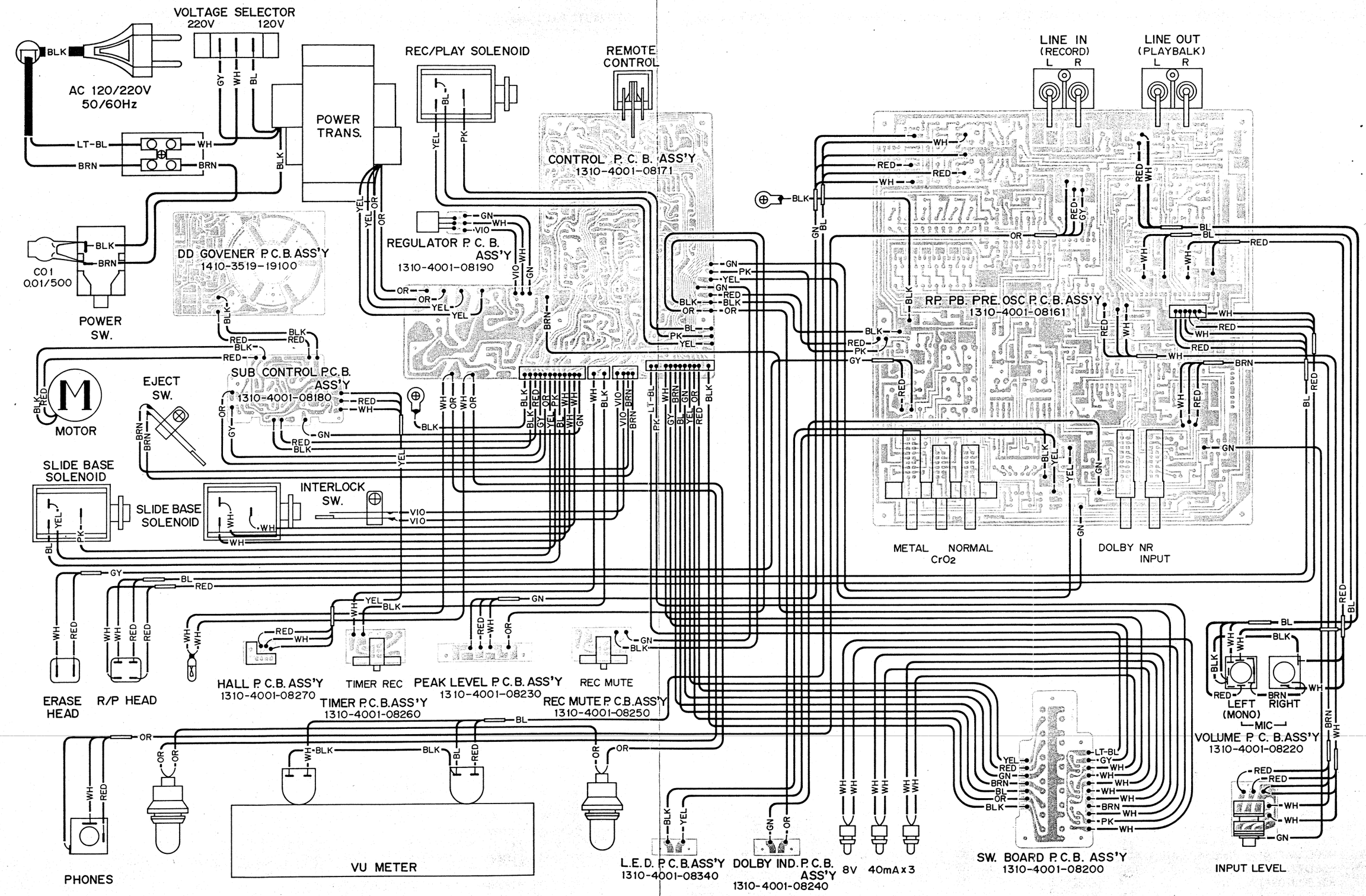
Ref. No.	Parts Number	Description
	4 2359 75053	Connector 12P Assy
	CAPACITORS	
C32	C1ARE-107A	Electrolytic 100 μF 10V
C33	C1ARE-106A	Electrolytic 10 μF 10V
C34	C1HFRK473A	Mylar 0.047 μF 50V ±10%
C35	C1CRE-106A	Electrolytic 10 μF 16V
C36	C1CRE-105A	Electrolytic 1 μF 16V
C37	4 2239 70190	Electrolytic 0.1 μF 12V
	SEMICONDUCTORS	
D29,30	202 5 2810 44255	Diode, DS442V
Q13,14	203 5 4580 69850	TR 2SB698 E, F
Q15,16	TTT-2SC1815-BL	TR 2SC1815 BL, GR
Q17,18	203 5 6940 54560	TR 2SD545F
Q19	TTT-2SC1815-BL	TR 2SC1815 BL, GR
IC05	4 2069 70870	IC, μPC1447H

Ref. No.	Parts Number	Description
	RESISTORS	
R55,56	R2EDUJ472A	Carbon 4.7k 1/4W ±5%
R57,58	R2EDUJ152A	Carbon 1.5k 1/4W ±5%
R59,60	R2EDUJ561A	Carbon 560 1/4W ±5%
R61	R3AXBJ330A	Oxide Metal Film 33 1W ±5%
R62	R2EDUJ821A	Carbon 820 1/4W ±5%
R63	R2EDUJ911A	Carbon 910 1/4W ±5%
R64	R2EDUJ102A	Carbon 1k 1/4W ±5%
R65	R2EDUJ274A	Carbon 270k 1/4W ±5%
R66	R2EDUJ183A	Carbon 18k 1/4W ±5%
R67	R2EDUJ103A	Carbon 10k 1/4W ±5%
R68	R2EDUJ101A	Carbon 100 1/4W ±5%

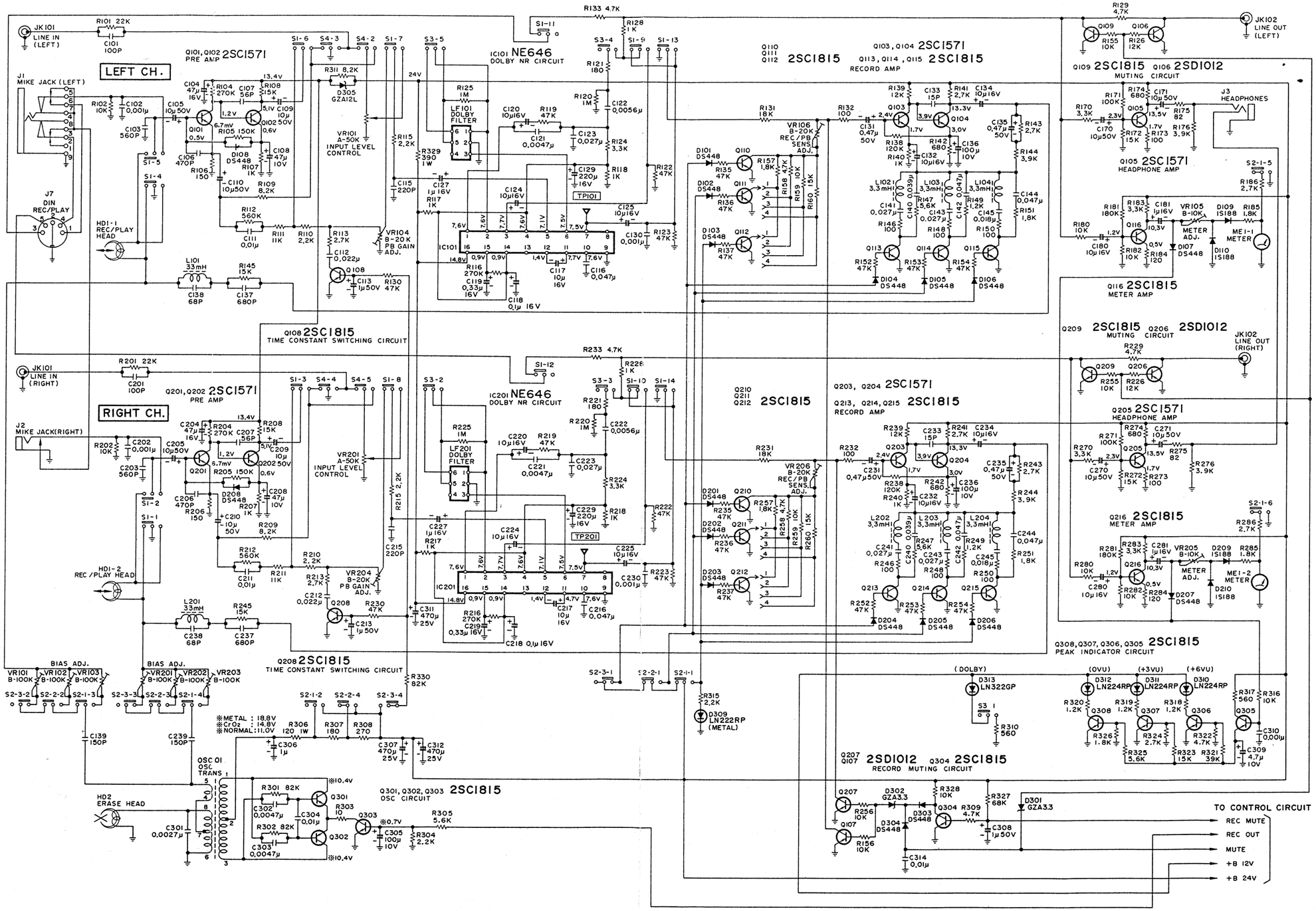
DD GOVENOR P.C.B. Assy
141 0 3519 19100

Ref. No.	Parts Number	Description
VR601	4 2229 73250	VR 30k-B
	CAPACITORS	
C601	C1CRE-105A	Electrolytic 1 μF 16V
C602,603 604,605	C1CUEX104A	Sint. Alu. 0.1 μF 16V +40,–20%
C606	C1HFRJ183A	Mylar 0.018 μF 50V ±5%
C607,608	C1HYDK822R	Ceramic 0.0082 μF 50V ±10%
C609	C1VTRM104A	Tantalum 0.1 μF 35V ±20%
C610	C1CRE-226A	Electrolytic 22 μF 16V
C611	C1CRE-336A	Electrolytic 33 μF 16V
C612	C1EBDK473X	Semiconductor 0.047 μF 25V ±10%
	SEMICONDUCTORS	
D601	202 5 3210 12010	Diode, GZA12L
IC601,602 603	4 2039 70670	IC, DN6839
IC604	206 5 2491 60110	IC, LB1601
Q601 602,603	203 5 4580 69860	TR 2SB698 F
Q604 605	203 5 5000 53660	TR 2SC536 F
	RESISTORS	
R601	R2EDUJ124A	Carbon 120k 1/4W ±5%
R602	R2EDUJ103A	Carbon 10k 1/4W ±5%
R603,604 605	R2EDUJ102A	Carbon 1k 1/4W ±5%
R606	R2EDUJ564A	Carbon 560k 1/4W ±5%
R607	R2EDUJ102A	Carbon 1k 1/4W ±5%
R608	R2EDUJ101A	Carbon 100 1/4W ±5%
R609	R2EDUJ561A	Carbon 560 1/4W ±5%
R610	R2EDUJ100A	Carbon 10 1/4W ±5%

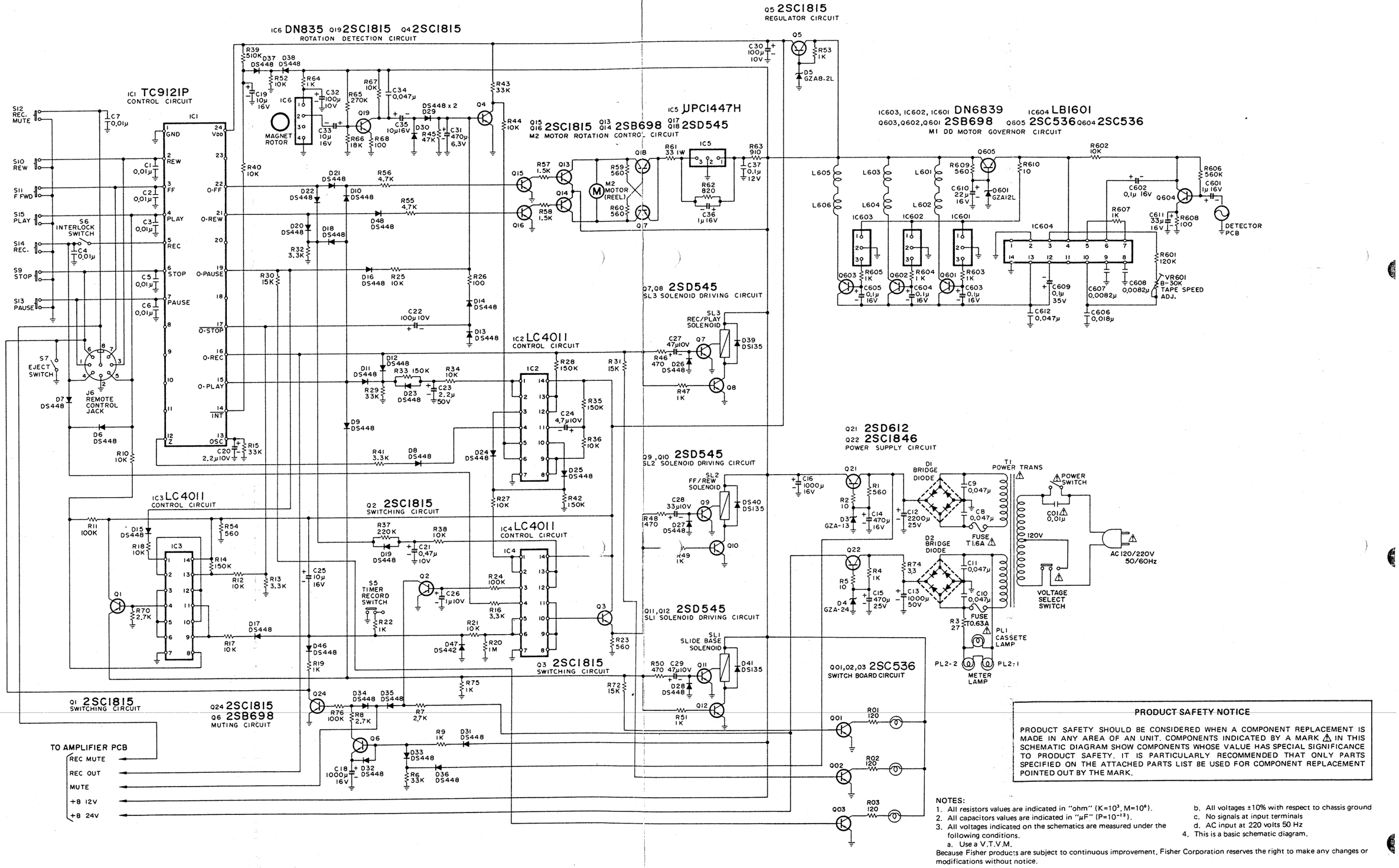
POINT TO POINT WIRING DIAGRAM



SCHEMATIC DIAGRAM(Amplifier Section)



SCHEMATIC DIAGRAM(Control Section)



PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF AN UNIT. COMPONENTS INDICATED BY A MARK ⚠ IN THIS SCHEMATIC DIAGRAM SHOW COMPONENTS WHOSE VALUE HAS SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE ATTACHED PARTS LIST BE USED FOR COMPONENT REPLACEMENT POINTED OUT BY THE MARK.

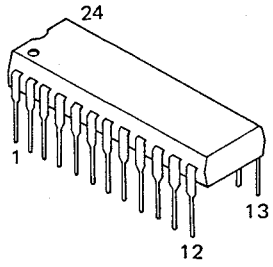
NOTES:

1. All resistors values are indicated in "ohm" (K=10^3, M=10^6).
2. All capacitors values are indicated in "μF" (P=10^{-12}).
3. All voltages indicated on the schematics are measured under the following conditions.
   a. Use a V.T.V.M.
   b. All voltages ±10% with respect to chassis ground
   c. No signals at input terminals
   d. AC input at 220 volts 50 Hz
4. This is a basic schematic diagram.

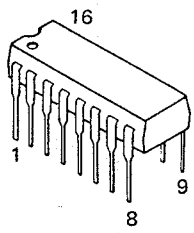
Because Fisher products are subject to continuous improvement, Fisher Corporation reserves the right to make any changes or modifications without notice.

SEMICONDUCTOR LEAD IDENTIFICATION

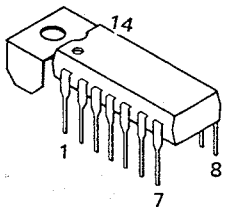
INTEGRATED CIRCUITS



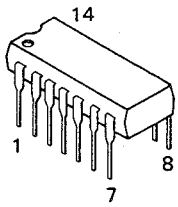
- TC9121



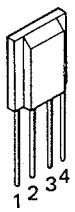
- NE646B



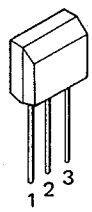
- LB1601



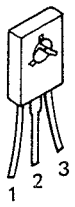
- LC4011



- DN835

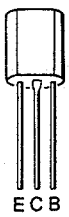


- DN6839

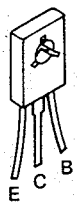


- μPC1447

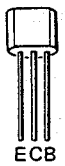
TRANSISTORS



- 2SD1012

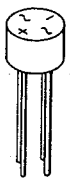


- 2SC1846
- 2SC612

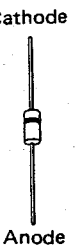


- 2SB698
- 2SC536
- 2SC1571
- 2SC1815
- 2SD545

DIODES



- W02



- DS135
- DS442
- DS448
- 1S188
- GZA3.3
- GZA8.2L
- GZA12L
- GZA13U
- GZA24U